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034

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1

What is the principal business activity at your location? (check one only)

01. ☐ Manufacturing (other)

02. ☐ Finance/Banking

03. ☐ Insurance/Real Estate/Legal

04. ☐ Health Care Services

05. ☐ Hospitality/Entertainment/Recreation

06. ☐ Media/TV/Cable/Radio/Print

07. ☐ Retail/Wholesale Trade/Business Services

08. ☐ Transportation

09. ☐ Utilities

10. ☐ Education

11. ☐ Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry)

12. ☐ Government (Federal/State/Local)

13. ☐ Military

14. ☐ Aerospace

15. ☐ Consulting (Independent)*

16. ☐ Carriers/Interconnects

17. ☐ Internet Service Provider (ISP)

18. ☐ Manufacturing (Computer/Communications/OEM)

19. ☐ Resellers of Computer/Network Products (VARs, VADs)

20. ☐ Systems/Network Integrators*

21. ☐ Distributors (Computer/Communications)*

22. ☐ Other (please specify)

*Please complete form based on largest client.

2

What is your job function? (check one only)

NETWORK IS MANAGEMENT:

1. ☐ Network Management

2. ☐ LAN Management

3. ☐ Datacom/Telecom Management

4. ☐ IS, IT, MIS, CIO, Systems Management

5. ☐ Internet/Intranet Management/Webmaster

6. ☐ Engineering Management

7. ☐ Corporate Management (CEO, Pres., VP, Dir., Mgr., Financial Management)

8. ☐ Consultant (Independent)

9. ☐ Other (please specify)

3

What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of? (Please print the appropriate number code in the box next to each product category. Please complete ALL categories A-M.)

1. \$50 Million or more

2. \$25 Million to \$49.9 Million

3. \$10 to \$24.9 Million

4. \$1 to \$9.9 Million

5. \$100,000 to \$999,999

6. \$50,000 to \$99,999

7. Under \$50,000

8. None of the above

A ☐ Large Systems (Mainframes/Minis)

B ☐ Desktops/Micros/Laptops/Workstations

C ☐ Servers

D ☐ LANs

E ☐ WAN Equipment

F ☐ Carrier Services

G ☐ Internetworking

H ☐ Internet

I ☐ Intranet

J ☐ Remote Access

K ☐ Peripherals

L ☐ Software

M ☐ Service/Support

4

What is the total number of sites for which you have purchase influence? (check one only)

1. ☐ 100+

2. ☐ 50 - 99

3. ☐ 20 - 49

4. ☐ 10 - 19

5. ☐ 2 - 9

6. ☐ 1

7. ☐ None

5

What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (Check one box in each column)

At Location

SERVERS

Entire Org.

At Location

CLIENTS

Entire Org.

At Location

LANs

Entire Org.

A

1. 50,000+

2. 10,000 to 49,999

3. 1,000 to 9,999

4. 100 to 999

5. 50 to 99

6. 10 to 49

7. 1 to 9

8. none

B

1. 50,000+

2. 10,000 to 49,999

3. 1,000 to 9,999

4. 100 to 999

5. 50 to 99

6. 10 to 49

7. 1 to 9

8. none

C

1. 50,000+

2. 10,000 to 49,999

3. 1,000 to 9,999

4. 100 to 999

5. 50 to 99

6. 10 to 49

7. 1 to 9

8. none

D

1. 50,000+

2. 10,000 to 49,999

3. 1,000 to 9,999

4. 100 to 999

5. 50 to 99

6. 10 to 49

7. 1 to 9

8. none

E

1. 50,000+

2. 10,000 to 49,999

3. 1,000 to 9,999

4. 100 to 999

5. 50 to 99

6. 10 to 49

7. 1 to 9

8. none

F

1. 50,000+

2. 10,000 to 49,999

3. 1,000 to 9,999

4. 100 to 999

5. 50 to 99

6. 10 to 49

7. 1 to 9

8. none

6

What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check one only)

1. ☐ Corporate/Enterprise

2. ☐ Department

3. ☐ None

B. Involvement (check ALL that apply)

1. ☐ Create Network Strategy

2. ☐ Recommend/Specify

3. ☐ Approve

4. ☐ Evaluate

5. ☐ Determine the need

6. ☐ None

7

What is the estimated number of employees at your location/in entire organization? (check one in each section)

A. At your location:

1. ☐ Over 20,000

2. ☐ 10,000 - 19,999

3. ☐ 5,000 - 9,999

4. ☐ 2,500 - 4,999

5. ☐ 1,000 - 2,499

6. ☐ 500 - 999

7. ☐ 499 or less

B. Entire organization:

1. ☐ Over 20,000

2. ☐ 10,000 - 19,999

3. ☐ 5,000 - 9,999

4. ☐ 2,500 - 4,999

5. ☐ 1,000 - 2,499

6. ☐ 500 - 999

7. ☐ 499 or less

8

Please indicate the products/services that you are currently involved in purchasing or plan to purchase: (Check ALL that apply)

A. Currently involved in purchasing

INTERNET/INTRANET

A ☐ 01. ☐ Internet Services

B ☐ 02. ☐ Firewalls/Security/Encryption

C ☐ 03. ☐ Internet Web Servers

D ☐ 04. ☐ Intranet Web Servers

E ☐ 05. ☐ TCP/IP Software

F ☐ 06. ☐ Management/Monitoring Software

G ☐ 07. ☐ Push Technology

H ☐ 08. ☐ Web Browsers

I ☐ 09. ☐ Intranet Applications/Groupware

J ☐ 10. ☐ Search/Retrieval Products (web crawler)

K ☐ 11. ☐ Internet Development Tools (JAVA, ActiveX, etc.)

L ☐ 12. ☐ Electronic Commerce Tools

M ☐ 13. ☐ Internet Telephony

LOCAL-AREA NETWORKS

A ☐ 14. ☐ Local-Area Networks

B ☐ 15. ☐ Network Operating System Software

C ☐ 16. ☐ Servers

D ☐ 17. ☐ Print Servers

E ☐ 18. ☐ ATM Switches

F ☐ 19. ☐ Token-Ring Switches

G ☐ 20. ☐ Ethernet Switches

H ☐ 21. ☐ Fast Ethernet

I ☐ 22. ☐ Gigabit Ethernet

J ☐ 23. ☐ IP Switches

K ☐ 24. ☐ LAN Storage/Backup

L ☐ 25. ☐ Optical LAN Storage/Backup

M ☐ 26. ☐ Disk LAN Storage/Backup

N ☐ 27. ☐ Tape LAN Storage/Backup

O ☐ 28. ☐ RAID LAN Storage/Backup

P ☐ 29. ☐ Network Test/Diagnostic Tools

Q ☐ 30. ☐ Cables, Connectors, Baluns

R ☐ 31. ☐ UPS

S ☐ 32. ☐ Network Interface Cards

T ☐ 33. ☐ SNMP Network Management

INTERNETWORKING

A ☐ 34. ☐ Routers

B ☐ 35. ☐ Hubs

C ☐ 36. ☐ Intelligent Hubs

D ☐ 37. ☐ Stackable Hubs

E ☐ 38. ☐ Bridge/Router

F ☐ 39. ☐ Bridges

G ☐ 40. ☐ Gateways

H ☐ 41. ☐ Concentrators/Repeaters

COMPUTERS/PERIPHERALS

A ☐ 42. ☐ Network Computers

B ☐ 43. ☐ Laptops/Notebooks/Sub-Notebooks

C ☐ 44. ☐ Micros/PCs

D ☐ 45. ☐ Minis

E ☐ 46. ☐ Mainframes

F ☐ 47. ☐ Workstations

G ☐ 48. ☐ Printers/Network Printers

H ☐ 49. ☐ CD-ROM

I ☐ 50. ☐ Fax/Modem Boards

J ☐ 51. ☐ Graphics/Multimedia/Audio/Video Boards

K ☐ 52. ☐ Memory/Chips/Boards/Cards

REMOTE/WIRELESS COMPUTING

A ☐ 53. ☐ Remote Access Products

B ☐ 54. ☐ Remote Access Services

C ☐ 55. ☐ PDAs

D ☐ 56. ☐ PDA/CMCIA Devices

E ☐ 57. ☐ Wireless Data Services

F ☐ 58. ☐ Wireless Data Equipment

G ☐ 59. ☐ Cellular Equipment & Services

SOFTWARE/APPLICATIONS

A ☐ 60. ☐ Network Management

B ☐ 61. ☐ Systems Management

C ☐ 62. ☐ Security

D ☐ 63. ☐ Communications Software

E ☐ 64. ☐ Terminal Emulation

F ☐ 65. ☐ Operating Systems

G ☐ 66. ☐ Applications Development Tools

H ☐ 67. ☐ Database Management/RDBMS

I ☐ 68. ☐ Groupware

J ☐ 69. ☐ Workflow

K ☐ 70. ☐ EDI

L ☐ 71. ☐ E-mail

M ☐ 72. ☐ Desktop Video Conferencing

N ☐ 73. ☐ Imaging

O ☐ 74. ☐ Suites/Server Suites (Back Office, etc.)

P ☐ 75. ☐ Middleware

Q ☐ 76. ☐ Document Management

R ☐ 77. ☐ Site Metering Tools

S ☐ 78. ☐ Computer Telephony Integration (CTI)

T ☐ 79. ☐ Data Warehousing

WIDE-AREA NETWORK EQUIPMENT & SERVICES

A ☐ 80. ☐ Modems

B ☐ 81. ☐ Asynchronous Transfer Mode (ATM)

C ☐ 82. ☐ Frame Relay Equipment/Services

D ☐ 83. ☐ ISDN Equipment & Services

E ☐ 84. ☐ FT-1/T-1/T-3 Multiplexers/Services

F ☐ 85. ☐ DSL Services/Products

G ☐ 86. ☐ SONET

H ☐ 87. ☐ Inverse Multiplexers

I ☐ 88. ☐ SMDS

J ☐ 89. ☐ Diagnostic/Test Equipment

K ☐ 90. ☐ DSU/CSU

L ☐ 91. ☐ VSAT/Satellite

M ☐ 92. ☐ PBXs

N ☐ 93. ☐ Voice Mail/Response

O ☐ 94. ☐ Videoconferencing

P ☐ 95. ☐ Leased Lines

Q ☐ 96. ☐ Switched Data

R ☐ 97. ☐ Virtual Networks

S ☐ 98. ☐ Outsourcing/Systems Integration Services

T ☐ 99. ☐ Education/Training Services

00. ☐ None of the above (1 - 99)

9

Please indicate the platforms that are currently installed/planned: (check ALL that apply)

A. Currently installed

NETWORK PROTOCOLS

A ☐ 01. ☐ TCP/IP

B ☐ 02. ☐ IPv6

C ☐ 03. ☐ SNA

D ☐ 04. ☐ DECnet

E ☐ 05. ☐ Novell IPX/SPX

F ☐ 06. ☐ APPC/APPN/LU 6.2

G ☐ 07. ☐ NETBIOS

H ☐ 08. ☐ AppleTalk

I ☐ 09. ☐ NFS

J ☐ 10. ☐ Other (please specify)

LAN ENVIRONMENT

A ☐ 11. ☐ Gigabit Ethernet

B ☐ 12. ☐ Switched Ethernet

C ☐ 13. ☐ Fast Ethernet (100 Megabit Ethernet)

D ☐ 14. ☐ Ethernet

E ☐ 15. ☐ ATM

F ☐ 16. ☐ Token Ring/Token Ring Switching

G ☐ 17. ☐ IP Switching

H ☐ 18. ☐ FDDI

I ☐ 19. ☐ 100Base-T

J ☐ 20. ☐ 10Base-T

K ☐ 21. ☐ LocalTalk

L ☐ 22. ☐ Fibre Channel

M ☐ 23. ☐ 100vg Any LAN

N ☐ 24. ☐ Other (please specify)

NETWORK OPERATING SYSTEM

A ☐ 25. ☐ Windows NT

B ☐ 26. ☐ Windows NT/Advanced Server

C ☐ 27. ☐ Novell IntranetWare

D ☐ 28. ☐ Novell (NetWare 4.X)

E ☐ 29. ☐ Novell (NetWare 2.X, 3.X)

F ☐ 30. ☐ Microsoft (LAN Manager)

G ☐ 31. ☐ LocalTalk (AppleTalk)

H ☐ 32. ☐ Banyan (VINES)

I ☐ 33. ☐ IBM (LAN Server)

J ☐ 34. ☐ Artisoft (LANtastic)

K ☐ 35. ☐ Other (please specify)

COMPUTER OPERATING SYSTEM

A ☐ 36. ☐ NT Server

B ☐ 37. ☐ NT Workstation

C ☐ 38. ☐ Unix/Xenix/AIX

D ☐ 39. ☐ Solaris

E ☐ 40. ☐ Windows

F ☐ 41. ☐ Windows 95

G ☐ 42. ☐ Windows 97

H ☐ 43. ☐ DOS

I ☐ 44. ☐ OS/2/OS/2 Warp

J ☐ 45. ☐ IBM MVS/VM/VSE

K ☐ 46. ☐ Digital VMS

L ☐ 47. ☐ Macintosh

M ☐ 48. ☐ Other (please specify)

49. ☐ None of the above (1-48)

B. Planned for purchase

01. ☐ Power PC

02. ☐ Power Mac

03. ☐ Mac Other

04. ☐ Multiprocessor Servers

05. ☐ P6/P11

06. ☐ Pentium/Pentium Pro

07. ☐ 486

08. ☐ 386

09. ☐ 286

10. ☐ Risc

11. ☐ Alpha

12. ☐ Other

10

Which of the following Servers/Clients do you have installed/planned at your location? (check ALL that apply in each column)

A. Servers

B. Clients

01. ☐ Power PC

02. ☐ Power Mac

03. ☐ Mac Other

04. ☐ Multiprocessor Servers

05. ☐ P6/P11

06. ☐ Pentium/Pentium Pro

07. ☐ 486

08. ☐ 386

09. ☐ 286

10. ☐ Risc

11. ☐ Alpha

12. ☐ Other

11

Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Mainframes (Large Scale)

1. ☐ IBM

2. ☐ Amdahl

3. ☐ Cray

4. ☐ Hitachi

5. ☐ Unisys

6. ☐ Other

B - Minis (Midrange)

1. ☐ IBM RS6000

2. ☐ IBM AS400

3. ☐ Digital

4. ☐ Tandem

5. ☐ Unisys

6. ☐ AT&T GIS

7. ☐ H-P

8. ☐ Data General

9. ☐ Other

C - Workstations

1. ☐ Sun Microsystems

2. ☐ Silicon Graphics

3. ☐ Digital

4. ☐ H-P

5. ☐ IBM

6. ☐ Other

12

What is the estimated gross annual revenue of your entire company/institution? (check one only)

01. ☐ \$2D billion or more

02. ☐ \$10 billion to \$19.9 billion

03. ☐ \$1 billion to \$9.9 billion

04. ☐ \$500 million to \$999.9 million

05. ☐ \$100 million to \$499.9 million

06. ☐ \$50 million to \$99.9 million

07. ☐ \$10 million to \$49.9 million

08. ☐ \$5 million to \$9.9 million

09. ☐ \$4.9 million or less

10. ☐ None of the above

13

For which areas outside of North America do you have purchase influence? (check ALL that apply)

1. ☐ Europe

2. ☐ Asia

3. ☐ South America

4. ☐ Australia

5. ☐ Middle East

6. ☐ None

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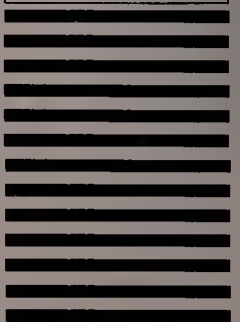
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THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

Intel's new virus protection software helps ward off the bad guys.

Invaders from beyond

Second-generation token-ring switches on Cisco's calendar

By Jim Duffy
Raleigh, N.C.

Cisco Systems, Inc. later this year will introduce second-generation token-ring switches that will attempt to overcome the performance and feature limitations of older token-ring products.

Cisco's new 16-port Switched Access Unit (SAU) will switch 28-byte frames at wire speed and feature hardware-based source route bridging (SRB), stackability and a high-speed uplink when it ships, according to sources familiar with the upcoming products.

See SAU, page 69

Microsoft to bolster remote access camp

Windows software in closed beta test lets remote users tap corporate backbones via the 'Net.

By Christine Burns
Redmond, Wash.

Microsoft Corp. is looking to break camp and hit the Internet access trail with a new set of Windows NT Server-based remote access technologies.

Code-named Base Camp, Microsoft's new connectivity wares include easy-to-use client dial-up communications software, authentication services and server-side management tools that will simplify remote access to corporate resources via the Internet.

Microsoft is aiming Base Camp at two big targets: large corporate IS departments looking for fast, inexpensive Internet access and Internet service providers. ISPs could use the new components to offer secure virtual private network (VPN) connections between remote users and corporate NT Server back-end systems.

Sources said Base Camp is in its third round of closed beta testing. Microsoft officials, who confirmed the existence of the Base Camp project, declined to comment further. The company is expected to give additional details on how it will bring Base Camp to market.

See Base Camp, page 14



Sure, we're Java compatible

Excited about using Microsoft Corp.'s Internet Explorer 4.0 to tap into that new Java application you're building?

Despite promises to the contrary, it isn't fully compliant with the Java Development Kit 1.1.

See story page 14.

Toy Scouts

Group parlay play into professional skills.

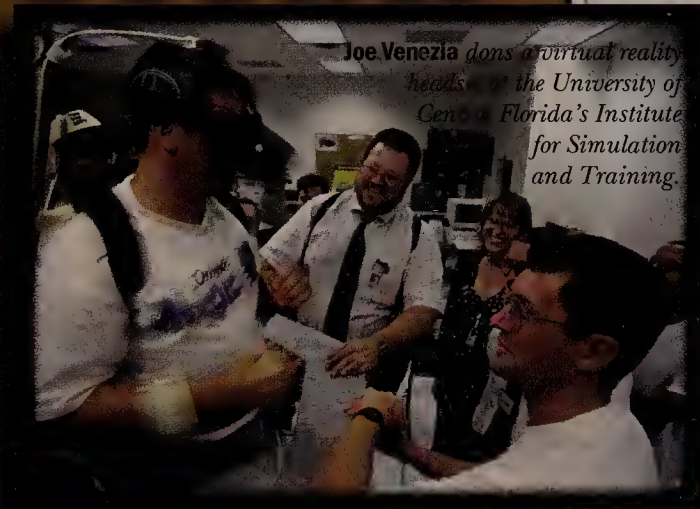
By Charles Bruno

It's a mid-July Friday night in Orlando, and Joe Venezia's sweetheart isn't going to be happy. Venezia isn't taking his girlfriend to the movies this sultry summer eve or anywhere else for that matter. But it's not because he's partying at the local watering hole or killing time with the guys.

Instead, the University of Central Florida (UCF) senior literally is camped in another world of his own making — a virtual world where military helicopters hover over a sandy, hilly terrain and low-earth orbit satellites glide before his eyes. Venezia's world is a distributed simulation environment, driven in large measure by high-powered networked computers.

"This is an interesting way to spend a Friday night," Venezia says. "My girlfriend complains, but I tell her this can help my career later on."

See Toy Scouts, page 55



Joe Venezia dons a virtual reality headset at the University of Central Florida's Institute for Simulation and Training.

Web-based free-mail winning biz converts

By Paul McNamara

There is more to free e-mail than an unbeatable price.

That is what a growing number of companies are saying as they discover new and creative uses for Internet-based freebies such as HotMail, NetAddress and Juno.

While there are more than a dozen out there, these three services claim about nine million subscribers, many of whom are using their accounts on the job and, in particular, on the road. Besides cost, customers are lured by the ubiquity of browser access and the knowledge that their



Mike Janes at Special Olympics International reports the company gets great mileage out of Juno, a free e-mail service.

e-mail addresses will not change should they take a new job or switch Internet service providers.

The hitch? E-mail messages sent via these services carry advertising banners, and security generally consists of simply name and password protection.

Some industry analysts see the free-mail bandwagon as little more than a consumer-driven phenomenon. IT managers have expressed security and server storage concerns regarding its

See Free-mail, page 12

Tivoli prepping TME 10 lite

By John Gallant and Jim Duffy
Boston

The chief executive of IBM's Tivoli Systems, Inc. subsidiary vowed last week to deliver a lightweight version of the company's Tivoli Management Environment (TME) 10 framework that could make it easier to bring

devices under the umbrella of the network/systems management product.

The lightweight version of TME 10 is a subset of the TME API set that will run on managed systems. In addition to simplifying installation of TME 10 and its

See Tivoli, page 69



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WORKIN' THE WEB KITCHEN

If you can't stand the heat, get into Kraft's Web kitchen. Page 41.



FLYING HIGH

New workflow software is keeping Sikorsky Aircraft in the air. Page 39.



NCs: HYPE OR HOPE?

Analyst Tom Nolle evaluates the real value of NCs. Page 49.



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This Week

Only on Fusion

Data warehousing. Is the concept of the enterprise data warehouse dead? For a show called Data Warehouse World, there have been a lot of attacks on the idea of data warehouses. Read up on what panelists and show-goers think. **DocFinder: 3229**

Network computers. IBM is pitching its Distributed Systems Series of infrastructure software as the foundation for its Network Computing Framework by combining protocols such as LDAP with Internet technology like Java. **DocFinder: 3226**

Security. Entrust is shipping strong public-key encryption software that will let users encrypt and digitally sign e-mail or files. **DocFinder: 3227**

E-commerce. GE Information Services last week launched a new set of e-commerce products and services designed to better link businesses to customers and suppliers. **DocFinder: 3228**

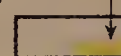
From the front page

Management. Read our story on Tivoli's plans for a lightweight version of its TME 10 line, then come online for articles on other plans it has for TME. **DocFinder: 3224**

Token ring. Suddenly, it's back in the news. Read our story on Cisco's efforts to jump-start the technology, then link to Fusion for a bushel of articles and links on the nascent Fast Token Ring market. **DocFinder: 3222**

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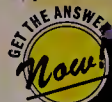
Be a NET KNOW-IT-ALL

For the answer to this week's question and more net trivia, visit Network World Fusion and enter 2349 in the DocFinder box.



This week's question:

What do SNMP and actor Tommy Lee Jones have in common?



www.nwfusion.com

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BRUCE ZAKE

News briefs, August 4, 1997

Streaming over the 'Net

■ MCI Communications Corp. is expected to announce this week a video streaming service for its Internet customers. The service is based on Progressive Networks, Inc.'s RealVideo and RealAudio technologies. While MCI would not comment on the service, Joel Maloff, president of The Maloff Group International, Inc., a Dexter, Mich.-based consulting firm said, "Streaming will be very popular because it lets users on the receiving end of a video broadcast preview a video clip before committing to downloading the entire file." Because most users do not have unlimited amounts of bandwidth, this will be an easier way for them to deal with video applications and broadcasts, Maloff said.

Wired for wireless

■ This week, seven North American wireless carriers are expected to band together to form the GSM (global system for mobile communications) Alliance. The seven carriers are believed to be Pacific Bell Mobile Services, a division of SBC Communications, Inc., Aerial Communications, Inc., Omnipoint Corp., Western Wireless Corp., Powertel, Inc., Microcell Telecommunications, Inc. and BellSouth Mobility, a division of BellSouth Corp. The GSM Alliance is expected to join its marketing forces and develop standard wireless personal communications services rates.

Netscape reaches for legacy access

■ Netscape Communications Corp. last week said it is going to work with mainframe and enterprise connectivity suppliers to provide Internet tools for accessing legacy data. Netscape and its partners will produce technology to access information from the enterprise or mainframe database and convert it to HTML or other languages for distribution over the Internet.

NETSCAPE'S LEGACY LINKS**Company partners include:**

▶ Apertus	▶ OpenConnect
▶ Attachmate	▶ TIBCO
▶ IBI	▶ Transarc
▶ NCR	▶ Wall Data

How to succeed in business without really trying

■ Last Thursday, Phil White suddenly resigned as chairman of the board of Informix Corp. Taking over is Robert Finocchio, whom White brought in less than two weeks ago to become president and CEO of the operating subsidiary, Informix Software Inc., the Menlo Park, Calif., database vendor. Informix has been losing money, some \$140 million in the last quarter.

Finocchio, a former 3Com executive, was brought in to refocus the company. The board apparently decided it wanted a clean sweep. In a prepared statement, White is quoted as saying he agreed "with the board that the company is best served with one clear leader to take a new view of the company's direction."

Demons, drugs and pornography

■ The National Strategy and Information Center, a Washington, D.C.-based think tank, last week released a report entitled "Encryption and Evolving Technologies: Tools of Organized Crime and Terrorism," about how encryption has been used in crimes such as drug dealing, insider theft, child pornography, espionage and terrorist attacks. The report states that there have been 500 criminal cases involving encryption worldwide.

The report, available for \$10 directly from the National Strategy and Information Center, recommends the establishment of a central repository to collect information about encryption-related crimes.

Security defined

■ Last week, Security Dynamics, Inc. and its subsidiary RSA Data Security, Inc. joined with McAfee Associates, Inc. and VeriSign, Inc. to propose the SecureONE framework, a set of APIs aimed at linking authentication, encryption, digital certificates and anti-virus technologies.

Sprint gives frame relay new priorities

Carrier backs preference for delay-sensitive traffic with low-latency guarantees.

By David Rohde

Kansas City, Mo.

Sprint Corp. last week revamped its frame relay service, putting class-of-service performance guarantees front and center.

The carrier divided its flagship fast-packet offering into three classes of service: LAN-to-LAN interconnection, SNA over frame relay and voice over frame relay. Utilizing separate permanent virtual circuits (PVC), the LAN and SNA services are available immediately. The voice ser-

ving the Sprint network and local carriers' access and termination circuits. The end-to-end network delay is lowest for users with a high-capacity access circuit such as a T-1, but SNA traffic gets priority at any given access speed (see graphic).

Sprint's experience working with local carriers enables it to predict the carriers' performance levels and take a chance on an end-to-end guarantee, said Brad Hokamp, director of advanced data services at Sprint.

The new Sprint services use

Make way for SNA traffic

Standard service level agreements for Sprint's two new frame relay services provide reduced latency for SNA traffic.

Access speed	Guaranteed maximum end-to-end delay under Frame Relay for LAN	Guaranteed maximum end-to-end delay under Frame Relay for SNA
56K bit/sec	130 msec	115 msec
256K bit/sec	85 msec	70 msec
T-1	70 msec	55 msec

vice is slated for introduction early next year.

Analysts said Sprint's action is the most significant development so far in the movement to bring quality of service (QoS) guarantees to frame relay. Carriers are using enhancements on their frame relay switches to identify and give priority to SNA, voice and other time-sensitive traffic (NW, Jan. 20, page 1).

MCI Communications Corp. earlier this year gave users the option of assigning a high, medium or low priority to their PVCs. But analysts and MCI officials last week said MCI's Priority PVC option merely instructs MCI's Bay Networks, Inc. switches to allow some portion of an individual user company's traffic — such as keystrokes in an SNA terminal-to-host session — to ride the network first while holding the same user's file transfer and e-mail traffic in a buffer.

By contrast, Sprint is employing a variety of prioritization techniques to guarantee that the traffic of all users of the new Frame Relay for SNA service transits the Sprint network in a maximum of 50 msec. Sprint set the maximum latency of the new Frame Relay for LAN service at 65 msec.

Sprint also introduced end-to-end latency guarantees cover-

the prioritization features of its 38 new Magellan Passport switches from Northern Telecom, Inc. Running in a parallel network with Sprint's older frame relay switches from Alcatel Data Networks, Inc., the Passports take in traffic via a frame relay user-to-network interface and ship it across the Sprint network via ATM cells. ATM offers standard QoS classes, while frame relay does not, Hokamp noted. Users who order the LAN and SNA service will receive ports on the Nortel switches.

"What this basically says is that new customers go on this new network," said Christine Heckart, senior broadband consultant for TeleChoice, Inc., a consulting firm based in Verona, N.J. Already 70% of frame relay users ship some SNA traffic on their fast-packet nets, she said, despite frame relay's roots handling LAN interconnection protocols such as IPX and IP.

Users may have to reassess their budgets to take advantage of Sprint's new offerings. Those with multiprotocol traffic will have to purchase dual PVCs out of each network node, one each for LAN and SNA traffic.

To ease that burden, Sprint lowered its traditionally high PVC prices, though it also instituted a large price differential between the LAN and SNA PVCs.

For example, Sprint had been charging \$140 a month for any PVC with a committed information rate — or rate at which frames cannot be discarded — of 16K bit/sec. Now the same PVCs cost \$44 a month for LAN interconnection traffic and \$68 a month for SNA traffic.

At the same time, Sprint raised its frame relay port charges across the board by 14% to 20%, in line with a recent industry trend.

The only additional fee for ordering MCI's Priority PVC service is a onetime \$20 charge per PVC to set up the service. The net impact is that Sprint's frame relay prices remain about 15% higher than MCI's, officials with both carriers agreed. ■

Collaborative Web site software aims to ease chaos

By Chris Nerney

Los Altos, Calif.

Webmasters running large Internet and intranet sites that undergo frequent revisions and updates face an unpalatable choice.

They can allow workers to create content and post changes directly to the site, thus risking a potential free-for-all of inconsistent styles, bad hyperlinks and security risks.

The alternative is for the Webmasters to review and approve hundreds or thousands of lines

of HTML code themselves — a scenario almost certain to result in production delays, not to mention major doses of stress.

But a start-up says its new Web site production-control software lets anyone contribute to the Web site, while at the same time giving Webmasters total control over content development, publication and deployment.

"The pain people are feeling is 'Webmaster bottleneck,'" said John Chang, vice president of

See Interwoven, page 8

GVPN

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TRUSTED INFORMATION SYSTEMS, INC.
Building a World of Trust

Wireless Net access is getting easier

By Denise Pappalardo
Hackensack, N.J.

GoAmerica Communications Corp., a wireless Internet service provider based here, announced last week it is teaming with a host of vendors to make it easier for users to access the Internet from anywhere.

The company will bundle its service with two devices from Novatel Wireless, Inc.: its Con-

tact Windows CE personal digital assistant (PDA) and its Minstrel Cellular Digital Packet Data (CDPD) modem for 3Com Corp.'s PalmPilot PDA.

The Contact PDA, which includes a Web browser from Microsoft Corp., is slated for availability at the end of the year. Pricing has not been determined, but a Novatel spokeswoman said it will be less than

\$1,000. The Minstrel CDPD modem bundle for PalmPilot includes Web browser software from Four Lights, Inc., a Denver-based software developer, and is slated for availability in September at a cost of \$399.

"GoAmerica has carved themselves a strong market niche," said Veronica Williams, managing director at Act, Inc., a South Orange, N.J.-based con-

sulting firm and author of Wireless Computing Primer.

Besides stripping Internet traffic of graphics, the company compresses the traffic for more efficient wireless transmission. That means users can download any information off the 'Net, not just Web pages that were designed for wireless transmissions.

GoAmerica offers its service by linking its terrestrial backbone with the Internet, two CDPD networks and RAM Mobile Data's network. GoAmerica's wireless Internet service also is available to RAM Mobile Data's wireless data users.

Honeywell, Inc. recently signed on with RAM and GoAmerica to support 750 technicians. Honeywell has invested millions to give every technician wireless intranet and Internet access, said Ed Campbell, national service manager for North America at Honeywell's Industrial Automation and Control division in Phoenix. "Our field service system was

very disjointed with five regions in the U.S. and everyone using a different solution," Campbell said. In order to remain competitive, the technicians needed

WIRELESS ACCESS TO THE INTERNET

GoAmerica, a wireless Internet service provider, through its packaging deals with Novatel Wireless and Four Lights, makes it easier for mobile users to get on the Internet from anywhere.

- GoAmerica's wireless Internet service and access software will be available on Novatel's Contact Windows CE personal digital assistant (PDA).
- GoAmerica's software bundle also will be available on Novatel's Minstrel, a CDPD modem for 3Com's PalmPilot PDA.
- Four Lights' wireless Web browser also will be bundled with the Minstrel modem, offering PalmPilot users full Internet and intranet access.

Interwoven

Continued from page 6

marketing for Interwoven, Inc.

Chang said the key to Interwoven's new product, TeamSite 1.5, is an "author seat" client that gives employees private work areas in which to develop Web content in isolation from coworkers.

Each area provides a virtual copy of the Web site, Chang said, enabling employees to work as though they are making changes to the actual Web server. They can immediately see the impact of their revisions on the site without affecting the actual site or the work of other contributors.

Employees can then forward their work to a staging area where Webmasters can ensure it is error-free and well-integrated with the rest of the site. If there are mistakes or style conflicts, the Webmaster can instruct the contributors to correct them and restage the material.

TeamSite Version 1.0, released in May, only offered client seats for Webmasters, adminis-

trators and Web site staff.

One early user of TeamSite was Catherine Hampton of Varian Associates, Inc., a Palo Alto, Calif.-based Fortune 500 company that produces semiconductor equipment and equipment for treating cancer with radiation. Hampton, Webmaster of Varian's oncology system Web site, said that before using TeamSite, she had "become an autocrat. Nothing got on the site until I had personally gone through every inch of code to make sure it was OK. TeamSite eliminated that problem," she said.

Ron Rappaport, an analyst with Zona Research, Inc., of Redwood City, Calif., said TeamSite's new author seat feature "seems like a logical extension of the product."

"As you have more people wanting to tweak a Web site, there is an increased desire by IT managers to make sure they don't touch the site," he said.

Interwoven was founded in 1995 by President and CEO Peng T. Ong, who cofounded Electric Classifieds, an online personal matchmaking site.

The company is targeting Fortune 1000 enterprises with large

Web sites.

The TeamSite server works on scalable processor architecture (SPARC)-based systems running Solaris 2.5 or higher. A Windows NT version is under development. The server can be accessed from any client desktop using a browser-based interface.

TeamSite 1.5 is available now. Chang said a "typical" starter configuration costs about \$35,000 and includes site analysis, system design, training and support. The new author seat client costs less than \$200 per desktop. ■

Ascend defends against firewall breaches

Firewall Control Manager is stingy with remote access to corporate nets.

By Tim Greene
Alameda, Calif.

Ascend Communications, Inc. last week introduced software that enables firewalls to control access to discrete network resources, rather than opening the company store to all comers that successfully respond to an authentication challenge.

Firewall Control Manager melds Ascend's Access Control authentication software and its Secure Access Firewall, letting IS managers set access profiles for each user.

Bill Haase, in charge of strategic development of information systems for Team America Corp., of Columbus, Ohio, said that means different classes of users can have different levels of access. His firm administers human resources and employee benefits for small businesses.

He uses the software to let one class of user access a Web page that contains forms new employees must fill out. Another class of user might be granted access to more sensitive information, such as a Team America database of salary infor-

mation about individual employees, he said.

That kind of selective access

from the Ascend Pipeline remote access routers to the Ascend MAX family of remote access switches — on Solaris and Windows NT.

Browser users connect to Firewall Control Manager and enter their password and ID. These are checked against a directory in a Remote Authentication Dial-in User Service (RADIUS) server.

The firewall grants access only to those resources identified in the RADIUS profile. When a user logs off, the connection is closed and that user must repeat the authentication to start a new session. "It dynamically adjusts security based on who's at the other end," Haase said.

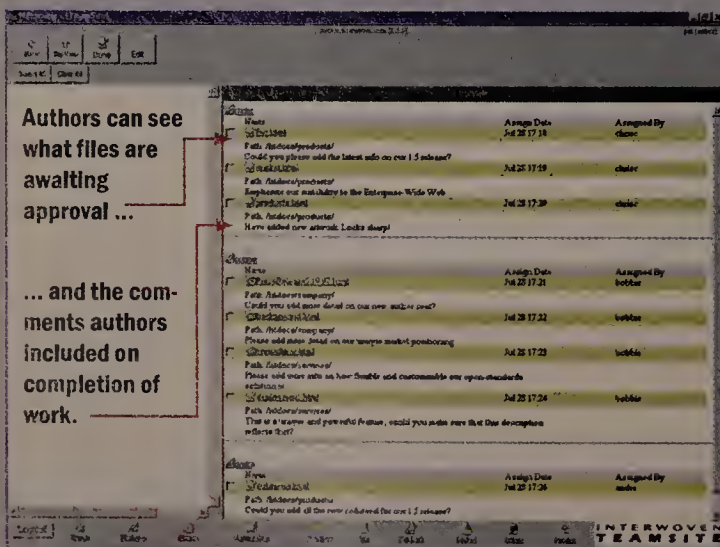
Firewall Control Manager supports third-party token cards that can help restrict access to particular individuals, rather than to specific remote devices.

Access Control server software costs \$3,000, and the firewall software for the access gear ranges from \$500 for a Pipeline to \$20,000 for a MAX TNT. It is available now.

© Ascend: (510) 769-6001

Collaborative Web development

Interwoven's TeamSite 1.5 Web development software includes an author "to do" list.



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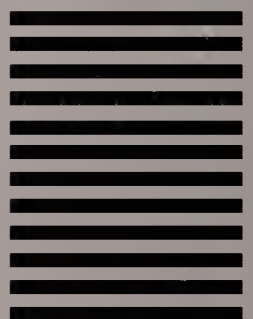
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"Think of it as insurance," says *PC Magazine*, in its Network Edition. "You shouldn't try to maintain a powerful client/server environment unless you're also willing to establish a reliable physical environment for your servers."

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Have you ever been frustrated with a rack's inconvenient size and shape? With 73.5 inches (42U) of storage height for industry-standard 19-inch, rack-mountable equipment, NetShelter safely houses the critical network and power protection equipment you need. Placed in datacenters, server rooms, branch offices and wiring closets, NetShelter moves easily, but is totally secure and stable. The cleverly engineered NetShelter rolls through a typical seven-foot office door (84 inches), where other racks get stuck. NetShelter rises to only 81.5 inches, fully assembled on integrated stabilizing feet with casters.

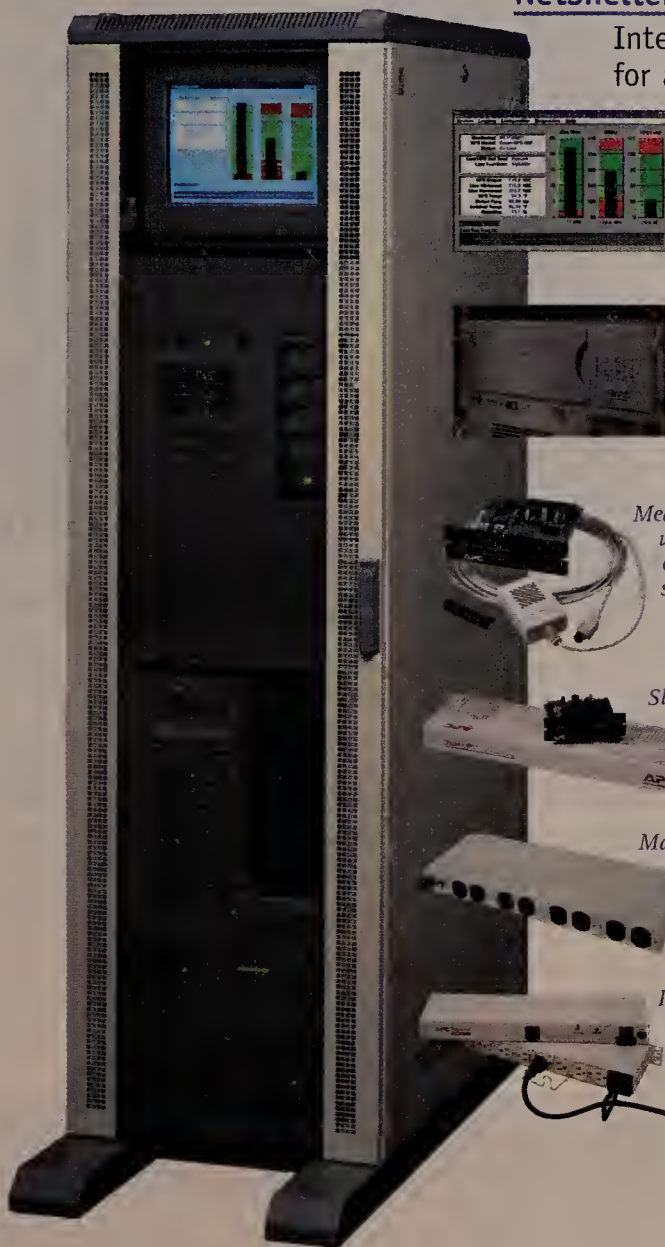
"The importance of a reliable UPS system is twofold: First, we had to protect our significant investment in computer hardware. Second,... our tolerance for downtime is extremely small."

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Bruce Lagravinese
CIO, Cyberplay Computer
Exploration Centers



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Lotus and Microsoft cozy up

By Paul McNamara

In an alliance with implications for the browser and groupware wars, rivals Microsoft Corp. and Lotus Development Corp. last week agreed to tightly integrate Internet Explorer 4.0 with Lotus Notes 4.6.

Netscape Communications Corp. takes a hit with this deal

both major browsers

While Lotus touts significant customer benefits resulting from the upcoming Notes/Internet Explorer 4.0 integration — for example, the ability to mail fully active Web pages — industry experts believe the deal was driven more by business considerations. In essence, Lotus does not want to distribute Netscape's groupware.

"As of [Version] 4.6, we won't bundle Navigator anymore with Notes," said Scott Eliot, a senior product manager at Lotus. "[It's] not because we think Navigator's a bad product or we don't want to, but because it's part of the Communicator suite." In addition to a browser, Communicator includes e-mail, discussion groups, HTML authoring, collaboration capabilities and calendaring and scheduling.

The Netscape package competes directly in the groupware market with Notes, Microsoft Exchange and Novell, Inc.'s GroupWise.

David Rothschild, director of client product marketing at Netscape, pooch-pooched the Lotus-Microsoft announcement as little more than reaffirmation of an existing deal. "Lotus wants some press around their [Notes] 4.6 release," he said. "I don't think it signifies anything much more than that."

Asked if Netscape was concerned that its browser will no longer be bundled with Notes, the sitting king of groupware, Rothschild indicated that the situation may not be permanent.

"I don't think the final chapter has been written on that," he said. "We're always in active dialogue with [Lotus' parent company] IBM on what we can be doing together."

Eliot said Lotus would consider bundling a stand-alone browser from Netscape in the future.

One industry analyst, David Marshak of Patricia Seybold Group, Inc. in Boston, saw increased cooperation between Microsoft and Lotus as a boon for customers. "As Windows and Explorer get merged [by Micro-

soft], the fact that these are also tightly integrated into Notes is all to the benefit of everybody using all of them," he said. "The UI will appear the same, the functionality will appear the same, it will be fairly seamless as you move between what we currently consider very separate applications."

Microsoft's willingness to more tightly integrate its products with Lotus' also may be indicative of how it views the current competitive landscape.

"From the Microsoft point of view," Marshak said, "it may actually be a signal that they consider Netscape more of a

threat than Lotus."

Notes 4.6 is due by September and initially will be fully integrated with Internet Explorer 3.0. An Internet Explorer 4.0 revision will follow once Microsoft has released that product, which is now in beta. ■

The Lotus-Microsoft agreement

Rivals Lotus and Microsoft last week announced joint plans to:

- Integrate Microsoft Internet Explorer 4.0 with Lotus Notes 4.6 and SmartSuite 98
- Ensure support for Microsoft's Component Object Model in Lotus applications
- Enhance Lotus' Domino servers and Notes clients with Microsoft technologies such as Active Desktop Interface, Active Directory and Active Server Pages

because its Navigator browser — now packaged as a piece of the company's fledgling Communicator groupware — was deemed by Lotus as too bulky and too much of a rival to continue to be boxed with Notes. Notes 4.5 currently comes bundled with

Intel beefs up virus security for its products with new software

LANDesk Virus Protect provides central virus defense.

By Marc Songini

Intel Corp. says it has just what the doctor ordered when it comes to virus protection.

The firm's newly released LANDesk Virus Protect 5.0 software will let users manage their distributed client/server environments from a central console.

The company said Virus Protect can ferret out almost all system invaders — whether they come in the form of file, boot or macro viruses.

Intel's LANDesk Management suite is a family of products designed to help users more easily manage desktop systems.

The company is sounding the alarm about the proliferation of viruses jumping from one network to another. One analyst agreed. "I don't want to lead people to mass hysteria, but more people are communicating with e-mail and the Internet, so there is more chance for them to communicate viruses," said

Kurt Schlegel, an analyst with META Group, Inc., a research firm based in Stamford, Conn.



Intel's Virus Protect has three layers of defense against viruses.

Virus Protect is designed to defend Intel-based Windows NT or Novell, Inc. NetWare servers and DOS or Windows clients. Using one console, network managers can perform system-wide virus detection sweeps.

The software identifies and contains viruses with three lines of defense. A real-time scan

engine examines e-mail attachments, Internet files and floppy disks for contamination; it also prevents corrupted files from being copied. The second line of defense is a server integrity shield function that write-protects executable files.

The third defense is an integrity verification tool in the software that tracks any changes in the network environment. Intel said the new software will alert net managers if a virus is in the system via a pager, e-mail or message box, among other means.

Virus Protect also automatically distributes profiles of new viruses through the network so the system will recognize and respond to them.

The question information service personnel are asking, Schlegel said, is not how effectively the antivirus software works, but how simple is it to deploy and operate in a network.

Having decentralized virus protection can leave holes in a company's defense perimeter, he said. Now, with centralized protection, monitoring and updating the defense system is in the network manager's hands.

Virus Protect 5.0 starts shipping today and costs \$1,495.

© Intel: (800) 538-3373

Logging on with confidence

By Ellen Messmer

Rockville, Md.

Axent Technologies, Inc. today announced an authentication server called OmniGuard/PowerVPN that secures Internet access to corporate networks through the use of dynamic passwords and encryption.

PowerVPN clients on remote-user PCs generate unique passwords that are transmitted to the PowerVPN server with each logon. Dynamic passwords safeguard against hackers sniffing out static passwords.

Once the user is authenticated, PowerVPN encrypts all transmissions using a 40-bit key, the 56-bit Data Encryption Standard or Triple-DES. All data is compressed before encryption.

Axent purchased AssureNet Pathways, Inc. last March, and PowerVPN uses AssureNet's Defender dynamic password token technology in software form. The PowerVPN server, which runs on Windows NT or Solaris, sits between the corporate LAN; the Internet access handles authentication of the remote user.

"When you're working from your home or a hotel, people typically use a dial-up connection to dial in to work," said Pete Privateer, Axent's vice president of operations. "But with PowerVPN, I can connect to the Internet and establish an encrypted tunnel, which could save a lot of money."

PowerVPN, scheduled to ship in August, will cost \$4,500 for a 100-user license; other pricing schedules are available.

© Axent: (301) 258-5043

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IBM positions DSSeries software as net infrastructure

By Rebecca Sykes
Boston

IBM last week said it would deploy its Distributed Systems Series (DSSeries) connectivity and directory software as the foundation for its overarching Network Computing Framework.

IBM currently is rolling out the DSSeries software. It includes Lightweight Directory Access Protocol (LDAP)-based directory services designed to provide networkwide naming and resource location over IP networks; an Internet security service that offers key-based authentication, access control and global encryption; and cross-platform availability services for applications, including clustering and replication.

The Network Computing Framework is IBM's grand scheme to link multivendor networked resources.

In addition to the DSSeries X.500 Directory Server, announced in April for IBM's AIX operating system, IBM's DSSeries plans include:

- DSSeries X.500 Directory Server for Microsoft Corp.'s Windows NT and Sun Solaris, slated for the fourth quarter.

- DSSeries LDAP Directory Server, scheduled for a fourth-quarter roll out on AIX. This product is designed to provide native LDAP directory services across the product lines of IBM and its subsidiaries Lotus Development Corp., Tivoli Systems, Inc. and Transarc Corp. LDAP support for Lotus Notes is scheduled to be included in Domino 4.6, which also is due in the fourth quarter, said Phyllis Byrne, vice president of Distributed Systems Services at IBM's Software Solutions Division.

- DSSeries Distributed Computing Environment-based LDAP Support, which provides LDAP access to Transarc's DCE Global Directory Agent, Cell Directory Server and Security Registry. With the additions, DCE users will be able to access data in LDAP-enabled directories, and LDAP clients can access the DCE infrastructure.

- Provision for Java interfaces through the Java Naming and Directory Interface and a set of Java Beans.

- Security using the Kerberos specification and public and private registries, including IBM Registry and IBM World Registry.

As customers choose the Internet as their framework for business computing, "the challenge in front of us is enterprise and Internet meeting," IBM's Byrnes said.

"Not until today have we coherently tied together our directory and security work," she said. "Today is the beginning of that rollout."

Sykes is a correspondent with the IDG News Service's Boston bureau.

Free-mail

Continued from page 1

workplace desktops. However, satisfied customers — and curious corporate heavyweights — are not difficult to find, as is evidenced here.

- Employees at a California computer game maker use HotMail extensively despite having company-issued cc:Mail from Lotus Development Corp. at their fingertips. HotMail, they say, is simply easier.

- Staffers at the Washington, D.C. headquarters of Special Olympics International communicate with 50 state chapters and 150 more international ones using Juno. Juno stands out among the freebies in that it does not even require an Internet account, only a dial-up mode.

- Search engine vendor Excite, Inc. began offering free e-mail last month, while American Express Co. earlier this year bought a piece of USA.NET, provider of NetAdress, with the intention of offering free e-mail accounts to cardholders.

"We have found that it's just easier and faster to use HotMail [than cc:Mail]," said Max Schaefer, vice president of Blizzard North, a 23-person computer game company in Redwood City, Calif. HotMail handles attachments well, he said, although that capability is limited in other free-mail services, or, as with Juno, nonexistent.

Schaefer finds HotMail particularly useful when traveling. "I was on a trip to Italy," he said, "and [all I needed was] a computer with Internet access to get my e-mail."

Taking the HighGround to NT storage

Company to ship first two Windows storage resource management products.

By Christine Burns
Boxborough, Mass.

Start-up HighGround Systems, Inc. next week will roll out beta code for its first two products, which enable administrators to centrally view and manage distributed Windows NT-based network storage devices.

PROFILE: HIGHGROUND SYSTEMS, INC.

Headquarters: Boxborough, Mass.

Founded: May 1995, by former StorageTek executive Dennis Grant

Funding: \$16 million since November 1995

Employees: 45

Products: Storage Resource Manager 1.0 and Media Mirror, storage resource management applications for Windows NT

Fun fact: Its on-hold music is bagpipes favored by CEO Grant, a Scotsman.

The first product, Storage Resource Manager 1.0, tracks the health and utilization of storage disk drives attached to multiple NT servers.

A Web-based front-end gives a network administrator a consoli-

dated view of disk attributes such as capacity levels, availability and defects. Administrators can tailor their views to see storage resources for the whole network, particular domains or a single machine.

The second product, called Media Mirror, brings fault tolerance to Windows NT-based data backup and recovery applications. It does this by simultaneously creating media replicas during normal backup operations. If a bad drive or faulty piece of media is encountered during the backup process, Media Mirror allows the process to proceed by continuing to write back-up data to other drives.

Media Mirror works with Windows NT Server's backup utility and Backup Exec for Windows NT from Seagate Systems, Inc.

Both products will be available in October. Pricing has not been set.

Based here, HighGround originally caught the industry's eye last September. At that time, Microsoft Corp. announced it would partner with the fledgling company to embed HighGround's still unshipped storage media management software into Windows NT 5.0.

Since that date, the two companies have developed the Windows NT Changer Media Services (NTMS) API for removable storage devices such as tape, optical and CD-ROM drives as well as robotic libraries. Applications developed to this API set share storage resources across the net.

The development will slash the existing cost of maintaining separate storage systems for every networked application, said HighGround Vice President of Product Marketing Tom Rose.

Future versions of Storage Resource Manager will leverage the NTMS API to track and manage all types of network storage devices from a single interface, Rose said.

© HighGround: (508) 263-5565

While commonplace in larger corporations, not every workplace has e-mail today.

"The whole e-mail and Internet thing was brand-new for us when we launched into it with Juno," said Michael Janes, spokesman for Special Olympics International. "We have people and volunteers and staff people all over the world, and it's always been one of our challenges to communicate with each other."

Unlike other free-mail systems, which have account holders access Web servers using standard browsers, Juno requires free client software on the desktop.

Once equipped, Juno customers use modems to dial up one of 400 Juno sites nationwide, which in turn connect to the Internet for mail transport.

Despite anecdotal accolades, long-term prospects for free-mail vendors are uncertain at best, according to one industry expert.

"The phenomenon will be limited to personal use or supplemental business use, and that means the advertisers who are driving these operations will probably be disappointed," said

Mark Levitt, an analyst with International Data Corp. in Framingham, Mass. "People are not going to be living in their free Web-based e-mail the way they would in a primary e-mail system."

Told American Express might sprinkle cardholder mail accounts with "special offers," Levitt was singularly unimpressed.

"Oh, I see, they will give you an in-box in which they will then send you junk mail," he said. Despite taking pains to discourage the practice, free-mail ven-

dors have been plagued by spammers.

Skeptics scoff at free-mail in part because they believe its advertising banners will never be widely accepted in work settings. One Juno user, however, disagreed with that judgment.

"You barely notice it," said the Special Olympics' Janes. "I probably shouldn't say that for the advertisers' sake." ■

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The pros and cons of free e-mail

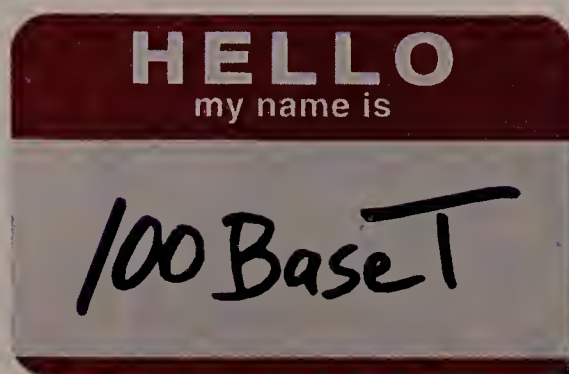
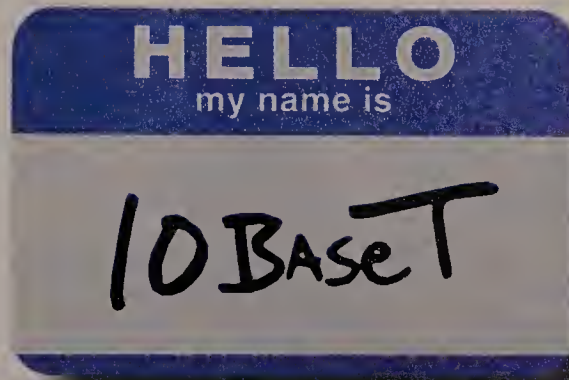
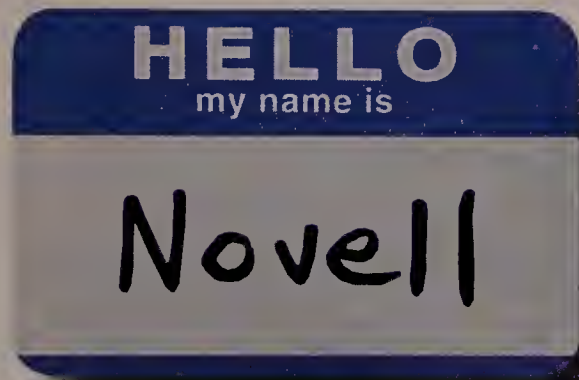
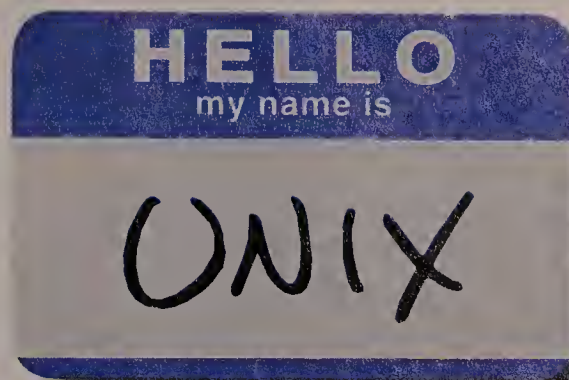
While free e-mail services vary, their benefits and drawbacks generally fall along these lines:

Benefits

- ▲ Price, in the avoidance of upfront and maintenance costs.
- ▲ Your e-mail address does not change if you move or switch jobs.
- ▲ Multiple e-mail accounts can be established from a single Internet account.
- ▲ E-mail in-box is accessible from any site that has Internet access.

Drawbacks

- ▼ Feature sets are limited compared to Post Office Protocol mail clients.
- ▼ User interfaces lack the sophisticated look of more established products.
- ▼ Some require users to compose messages while online, thus incurring additional Internet access charges.
- ▼ Advertising banners on mail messages may distract or offend recipients.
- ▼ Attachment capabilities are limited or nonexistent.

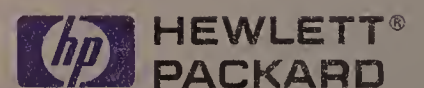


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Base Camp

Continued from page 1

Camp to market at its professional Developer's Conference in San Diego next month.

"Using the Internet instead of maintaining dedicated lines for these remote sites will cut companies' access costs a good deal," said John Pescatore, senior consultant with Trusted Information Systems, Inc., a security services firm in Glenwood, Md.

Setting up Base Camp

Microsoft is prepping several Internet-based access tools that will let users securely tap into corporate resources via the Web.

Clients:

Connection Manager is a Windows-based dialer that simplifies making PPTP connections.

Administration:

Connection Manager Administration Kit lets an ISP or network manager set up parameters for multiple remote client connections over a secured Web link, also known as a virtual private network (VPN).

Server:

The NT-based Connection Point Services help maintain custom phone books for all VPN connections. Internet Authentication Server validates incoming users against NT directory services, ODBC databases or NT SAM security databases.

But corporations will not give up their leased lines without guarantees of better performance and secure access control.

Rebecca Wetzel, director of Internet services at TeleChoice, Inc., a Verona, N.J.-based consultancy, said while Microsoft has had little success convincing "Unix-bigoted" ISPs to use NT for hosting their Web server or e-mail services, customer demand for NT-based VPNs could give Microsoft an opening in this market.

"If big customers push for it and Microsoft makes it easy to use and deploy, ISPs will have to consider the option," Wetzel said.

VPN groundwork

Microsoft began laying the groundwork for building VPNs when it shipped support for Point to Point Tunneling Protocol (PPTP) last year with NT 4.0. PPTP is a way of securing PPP bit-streams across IP networks such as the Internet. This will enable customers to use ISP links to establish VPN connectivity with corporate NT servers.

Microsoft has positioned this type of PPTP-enabled VPN as a less expensive alternative to using dedicated phone lines tied to popular hardware-based remote access servers.

Despite the protocol support, setting up these connections and managing access to resources on the corporate net is a challenge, said Jim Stadler, vice president of product management at Digex Corp., an NT-based Web site management firm in Beltsville, Md.

Several Digex customers use PPTP to manage content residing on the NT Web sites Digex manages. But end users must know the ISP phone number and IP address of a targeted server before initiating the connection. On the server side, an administrator must manually define access rights for every end user individually.

"It's not intuitive and there are no tools to help you," Stadler said.

Technology details

Windows NT product manager Lloyd Spencer said Microsoft is aware of the shortcomings of its current PPTP implementation.

"Those are the types of problems we are looking to solve with Base Camp," Spencer said.

According to beta-test documentation obtained by *Network World*, Base Camp is comprised of four new features that provide the technology necessary to establish a secure VPN link.

New client-side technology, called Connection Manager (CM), is an enhanced Windows dialer that automates the existing PPTP connection process.

Get more online:

- PPTP details
- A review of remote access servers

www.nwfusion.com

The Connection Manager Administration Kit is a Wizard that a corporate network manager or an ISP administrator would use to create and distribute custom service profiles to client machines. The service profiles provide the CM with the appropriate information for the client to connect to the ISP as well as targeted PPTP servers.

The NT Server-based Connection Point Services (CPS) will

allow ISPs to create, manage and distribute custom phone books and point-of-presence numbers. The client-side CM can be preconfigured to automatically download a partial or full update from CPS.

Base Camp also will contain

an Internet Authentication Server, which is expected to be delivered in two versions. A lightweight version will authenticate remote users against an NT directory back end. A future version will include back-end support for Microsoft's Com-

mercial Internet Server membership system and Open Database Connectivity databases.

It also will have a proxy capability to permit authentication from a Remote Authentication Dial-In User Service server. ■

Microsoft backs down on Java claims for Internet Explorer 4.0

Microsoft: "We made a mistake and we've got to correct it."

By Ellen Messmer and John Cox
Redmond, Wash.

Microsoft Corp. has been saying its new Internet Explorer 4.0 browser conforms to the latest Java specification. But last week it came clean and acknowledged that is untrue.

Contrary to what Microsoft is proclaiming to users and on its Web site, Explorer 4.0 is not fully compatible with the Java Development Kit (JDK) 1.1, the core Sun Microsystems, Inc. Java specification licensed to the industry for write-once, run-anywhere computing.

That means users cannot count on Explorer 4.0 — which has been in beta for two weeks and has been downloaded a million times — to run some applications that really are JDK 1.1-compliant.

Specifically, the new version of Explorer lacks the Java-to-Java transport mechanism called Remote Method Invocation (RMI), the digital signature feature for "signing" Java applets and the Java native interface.

"We have all of the JDK 1.1 with those exceptions," said Microsoft Director of Platform Marketing Cornelius Willis, who added Microsoft also will not support the new Java Foundation Classes that Sun has out in developer release. "If we said otherwise, we made a mistake, and we've got to correct it."

Willis said Microsoft has substituted its own Component Object Model (COM) and digital signing technology in place of similar features in the JDK.

"They want people to be confused," said Dave Smith, analyst at the Stamford, Conn.-based consultancy Gartner Group, Inc. Smith said Microsoft is willing to let Java live as simply another programming language, but the Redmond giant wants to stamp out Java in any role it may play as an operating system that competes with Windows.

Wayne Meyers, Smith Barney, Inc.'s senior technical specialist for technology, research and planning, said the JDK compatibility issue is important because his firm is considering using a product from Fischer International, Inc. that provides browser-based e-mail. Meyers said the product, called Planet Tao, cannot incorporate attachments without using a Java 1.1-

used for creating distributed Java applications.

RMI is the mechanism used in the San Francisco project to let distributed Java components work together over the network. IBM chose RMI because it was part of JDK 1.1, said Brad Rubin, IBM's lead architect for the project. "Using the officially blessed solution was important to us," he said.

Microsoft: "We love Java. Honest."

In discussions with corporations and on its Web site, Microsoft claims the new Internet Explorer 4.0 browser is fully JDK 1.1-compliant. But when you pin down the Redmond, Wash., giant, it admits this is untrue.



based browser. Meyers said Microsoft's Java product manager had even assured him Explorer 4.0 would use JDK 1.1.

The fact that Explorer 4.0 does not support the Java RMI could become a major worry for some. Companies such as Mitsubishi Corp. are developing RMI applications for use in-house and for commercial sale. "If you didn't use RMI, you'd have to do something like tunnel everything through HTTP," said Ann Thomas, an analyst at Boston-based consultancy Patrica Seybold Group, Inc.

Thomas also pointed out that RMI is at the heart of IBM's San Francisco Project, a joint effort with some 200 software companies to create a set of reusable Java frameworks for business applications. Designed to save developers from having to write Java code that already exists as building blocks elsewhere, the San Francisco framework will be

To run applications built with the San Francisco project frameworks, customers will need a Java Virtual Machine (JVM) that supports JDK 1.1. The JVM could be part of a Web browser or packaged with an operating system or a separate program.

Ironically, IBM's Lotus Development Corp. last week announced a major push to integrate Explorer 4.0 browser into Lotus Notes (see story, page 10). Lotus President Jeff Papows said Microsoft's COM — the alternative to RMI — will be added to Lotus applications so customers will be able to carry out tasks such as serving Excel spreadsheets from a Lotus Domino-developed Web page.

While Microsoft said it is highly unlikely that it will ever have a fully JDK 1.1-compliant browser, Netscape Communications Corp. has promised to have a compliant browser out by the end of the summer. ■

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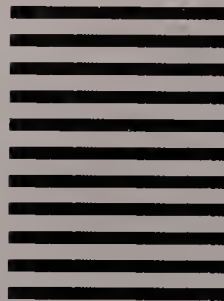
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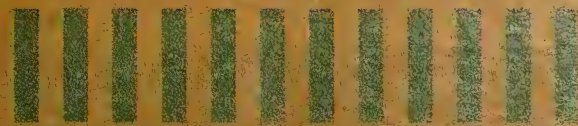
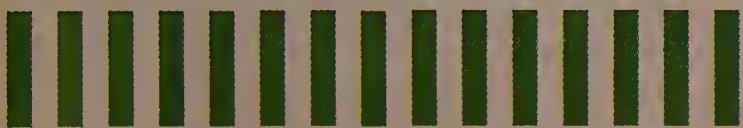
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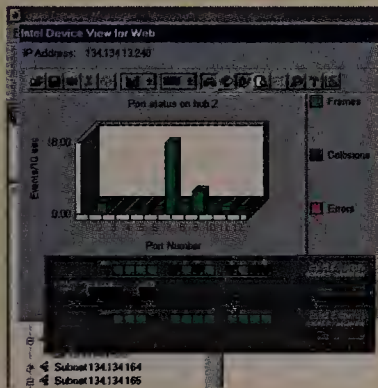
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Local Networks

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Briefs

■ **Intel Corp.** last week unveiled a **Web-based management tool** designed to ease installation, configuration and troubleshooting of the company's hubs and switches. Intel Device View for Web 1.01 displays



Device View for Web 1.01

information about PCs connected to the hub — such as user, domain and machine name — to help diagnose problems without requiring a trip to the wiring closet. Intel Device View for Web is shipping now as a free feature with Intel hubs and switches.

& Intel: (800) 538-3373

■ **Xylan Corp.** last week rolled out a two-port **622M bit/sec ATM module** for its flagship OmniSwitch chassis. Customers can load as many as eight of the CSM-622 modules in a single OmniSwitch, providing a total of 16 high-speed ATM ports. Pricing for the CSM-622 starts at \$15,500, and the module is available now.

& Xylan: (818) 880-3500

■ **Start-up Jato Technologies** last week made its foray into the red-hot **Gigabit Ethernet market**. The Austin-based semiconductor company was founded in September 1996 by executives from Thomas-Conrad Corp. It plans to develop 10/100/1,000M bit/sec Ethernet chips for use in network interface cards (NIC). Jato estimated that a Gigabit Ethernet fiber NIC — using its chip — would cost \$400 by the first quarter of next year, down from about \$2,000.

& Jato: (512) 452-0600

Madge Networks returns to its roots

Breaks into four divisions, calls it quits on 'solutions' market and scales back ATM.

By Jodi Cohen
San Jose, Calif.

The new Madge Networks, Inc. looks a heck of a lot like the Madge of old.

The company last week announced it will restructure into four divisions — token ring, Ethernet, video networking and carrier products — in an effort to return to profitability.

Madge was founded in 1986 as a token-ring vendor, then got into the Ethernet game when it acquired LANNET, Inc. in July 1995. With the acquisition of multiplexer vendor Teleos Communications, Inc. in February 1996, the company entered the video and carrier markets.

The idea was to integrate all of the components under MadgeOne, a network architecture that integrates voice, video and data. Now Madge is abandoning MadgeOne in the face of increasing losses.

"Madge made some pretty heavy bets, and they lost," said Kevin Tolly, president of The Tolly Group, a consulting and testing firm in Manasquan, N.J. "But they have some very good technology, so I think Madge can bounce back."

Get more info online:

- Current Madge financial and stock info
- Articles on the battles between ATM and Gigabit Ethernet

www.nwffusion.com

Madge reported a net loss of \$6.7 million for the second quarter ended June 30, compared to a loss of \$5.5 million for the same quarter in 1996. Revenue was down to \$102.1 million from \$112.5 million in the same period last year. The company's stock, which has ranged in price from \$4.50 to \$16.12 in the past year, was hovering at around \$6 at press time.

Robert Madge, chairman and CEO, attributed the poor results to weak system product sales. So Madge is making a bold move in

an effort to turn things around. But in doing so, the company is abandoning the solutions market, which is dominated by one-stop shops 3Com Corp. and Cisco Systems, Inc.

That may be a smart move because the solutions craze may have peaked and be on the decline, Tolly said.

Packaged systems were needed several years ago because customers were less sophisticated and needed help making product choices, Tolly said. Also, proprietary technology was more pervasive, so there was a safety factor involved with a full solution.

Back to the basics

"This may be the 'beginning of the end of 'the solutions sell' because those two aspects are different today. Customers are more sophisticated, and most of

the key protocols and functions are now standard and interoperable," Tolly said.

Now customers just want superior components, industry observers said. And the new organizational structure will

might want to look elsewhere. The company plans to reduce operating expenses by about one-third over the next two years, with a good chunk of the savings coming from scaling back investment in ATM research and development.

ATM omen?

"This is another bad sign for ATM," Tolly said. "Madge invested early in ATM and was

MADGE MAKES MOVE TO RESTRUCTURE

The vendor has split into four separate divisions.

Division	Products
Token ring	Adapter cards, hubs, switches and network management
Ethernet	LANswitch and Visage switches (acquired from LANNET)
Video networking	WAN Access Switch for room and desktop videoconferencing
Carrier products	Edge Switch Node ISDN products

help Madge get back to the basics with Ethernet, token ring and video point products.

But if you are looking for ATM gear — which once was a key focus for Madge — you

involved in switches, network adapters . . . even down to the 25M bit/sec level. And now they've pulled the plug on ATM and given up."

© & Madge: (408) 955-0700

NT Servers

CDS brings out 'kinder' file server

By Marc Songini
Santa Clara, Calif.

Creative Design Solutions, Inc. (CDS) last week announced a kinder, gentler NT file server for the networking masses.

Plug & Stor 100 EX is a small Ethernet device that emulates an NT server and supports a variety of back-end storage options. Its primary function is for file and print operations in networks supporting two to 200 users.

User benefits

The box is intended to help companies reduce backbone traffic and speed response times. It will do so by decreasing the cost and complexity of deploying servers to localize data.

Plug & Stor costs about half as much as an NT server and requires no special training to operate, according to the company. It supports Windows 95, NT, NetPC and network computer clients and both 10M and 100M bit/sec Ethernet links.

"Network congestion is a growing problem as people share information that contains more graphics, color and video data," said Peter Harvey, CEO and chairman of CDS. "We developed Plug & Stor to give users a simple way to unplug the clogged arteries of existing networks and a way to build new networks that won't become congested."

The embedded software includes a file and print server, RAID 1 mirroring to preserve data and TCP/IP support.

The box can be attached to and used with SCSI storage devices, such as removable drives, standard hard disk drives and CD-ROM towers, with the exception of tape drives. There is virtually no storage capacity limitation, Harvey said. And where it takes Windows NT machines 40 minutes to

start up, it only takes the Plug & Stor five minutes.

Because of its low cost and simplicity, this type of technology is the wave of the future, said Michael Peterson, president of Strategic Research Corp., a consultancy based in Santa Barbara, Calif. "What CDS is doing here is making an early entrance into a very new wave of technology that will change storage," he said. "It

Cheaper and easier networking with CDS

Creative Design Solutions' Plug & Stor 100 EX emulates an NT server and offers:

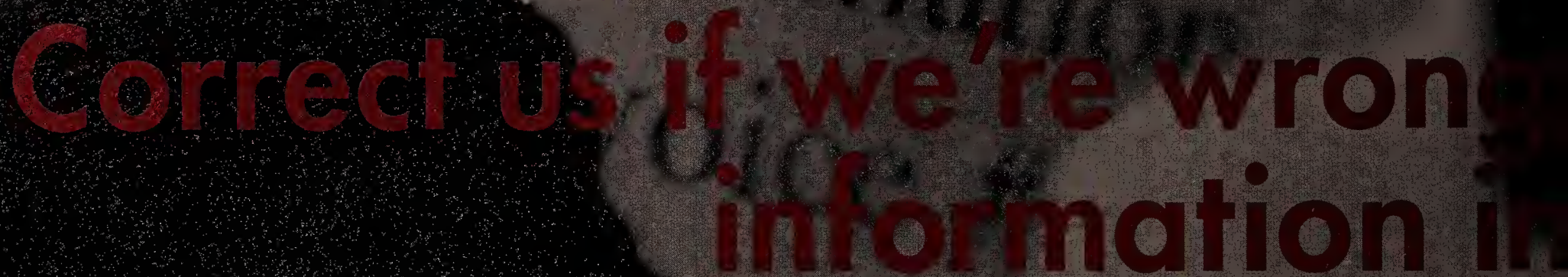


- A 10M/100M bit/sec Ethernet connection
- A printer port
- Two SCSI Narrow connectors
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has been pioneered and well proven in the CD world."

Plug & Stor costs \$1,349 and is available now.

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COMPAQ



Hackers love NT's compatibility

I was doing some research for an article on firewalls a while back, and I came across an invitation to yet another

trade show/conference. This one claimed to "focus on the vital security issues facing organizations with large

enterprise networks and mixed network operating systems."

Among the topics were denial-of-service attacks, secure programming techniques and tool selection for creating and effectively monitoring secure networks.

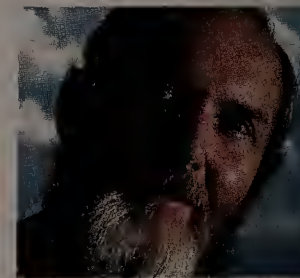
So far, it didn't look like much. Then I read over the list of presenters. Right up there with Yobie Benjamin (chief knowl-

edge officer at Cambridge Management Labs) and Ira Winkler (National Computer Security Association), were Mudge, Route, Kore, Qmaster, Sluggo and Hobbit — hackers and phreaks, every one! What is the world coming to?

Over the past year, security attacks against Windows NT systems have increased exponentially. Each new security breach was followed within a few days by a fix or workaround from Microsoft.

Many of you probably dismissed most of the attacks because they required physical access to the NT server or the administrator's password. It's a truism that all security begins with physical security. If the bad guys can get to the keyboard or disk drive, then no matter what you do in terms of software security, you're as vulnerable as a bank that leaves its safe unlocked at night.

The most recent tool for attacking NT is L0phtCrack 1.5. It uses a combination of brute force (for example, guessing passwords) and a dictionary attack (trying 28,000 frequently used words) and purports to be able to return clear text passwords on a typical NT network. A 100-user password file was cracked in less than a minute (details available at www.l0pht.com/advisories/l0phtcrack15.txt — note that L0pht is spelled L-ZERO-P-H-T).



Dave Kearns

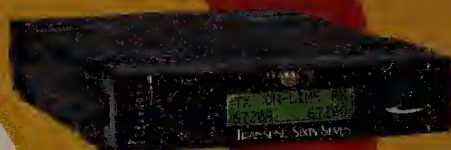
Searching the Microsoft security site (www.microsoft.com/security/) showed no response to this latest attack.

Other password attacks have usually resulted in a Microsoft response within a few days. But the hackers don't care because, according to Mudge, they can bypass any Microsoft fix by exploiting a fundamental problem that Microsoft faces: the need to maintain backward-compatibility to the legacy LAN Manager system with its extremely weak password structure, which breaks a chosen password into two seven-character pieces.

As long as Microsoft feels the need to support backward-compatibility with security-weak systems, there's little hope of creating a secure network environment. At this time, Microsoft intends to retain this backward-compatibility in NT 5.0's Active Directory system. Just one more reason to hope Novell releases Novell Directory Services for Windows NT very soon.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@uquill.com.

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SPECIAL FOCUS

NT add-ons

Worth their weight in code?

Microsoft Corp. may have been late to learn how to corner market share by giving away products, but judging by what it bundles into NT Server today, it is clear the Redmond giant has been converted.

The jury is still out, however, on whether customers are, in fact, using the free NT add-ons — which include services such as Web serving, multimedia content delivery and low-end routing capabilities. If they are using the free add-ons, the question remains: Are they doing so because the Microsoft wares are better than competing products or merely because the price is right?

History shows that the market shifts away from services previously delivered by third parties once similar technologies are shipped with the operating system, says Greg Vogel, an analyst with Montgomery Securities, an investment banking firm in San Francisco.

"Look at the fall of the add-on TCP/IP stack. An IT manager won't spend the money or the time on installing one from FTP [Software, Inc.] or NetManage [Inc.] when he gets a perfectly adequate one with NT," Vogel says.

Microsoft makes the argument that it pays to use its free products because they are well-integrated with NT's base functionality and take advantage of any advanced, proprietary OS features.

Perhaps the most well-known NT add-on is Microsoft's Web server, Internet Information Server (IIS).

IIS product manager Jonathan Perera says the server is easier to manage than competing products because customers can use existing NT administration tools to manage IIS.

"IIS is more than your average HTTP server because of the application environment it enables,"

By Christine Burns

Perera says. As evidence, he points out that IIS can host Active Server Pages, a feature that enables developers to combine HTML and server-side scripts to run object-based ActiveX business applications.

Additionally, IIS can tap into the Microsoft Index Server, another free NT service, to help a user search for all types of HTML and Microsoft Office documents stored on a corporate intranet.

Numbers published by Netcraft, Ltd., a British firm that tracks the Web server market, show an increase in IIS's presence on the World Wide Web since Microsoft began bundling it with NT 4.0 a year ago. In July 1996, Netcraft tracked only 18,000 IIS servers on the Internet, compared to the 51,000 sites running Netscape Communications Corp. Web servers. The same survey conducted last month showed more than 200,000 IIS sites compared to 140,000 sites running Netscape.

But not all users are convinced that free NT add-ons are the way to go. Northern Trust Corp. in Chicago is replacing its 48 Novell, Inc. NetWare 3.12 servers with 16 NT 4.0 machines. But the company is bypassing IIS in favor of Netscape's Enterprise Server. Because Northern Trust uses the Common Object Request Broker Architecture object model, as opposed to Microsoft's Distributed Component Object Model for building applications, "any application development advantage IIS may have had is lost," says senior network analyst Kurt Guerrero.

Skip Taylor, a group manager of remote access services with CompuServe, Inc., says customers' existing networks play a big role in whether they choose to use NT add-ons. Companies looking to roll out remote access capabilities for the first time

are likely to find NT's built-in Remote Access Server (RAS) easy to use and robust enough to support small groups of users.

"But if they already have a U.S. Robotics [now 3Com Corp.] or a Shiva [Corp.] remote server in place, NT RAS isn't going to bump those products out," Taylor says.

NT FREEBIES

Microsoft offers many of its NT-based products free of charge.

Product	Where to get it
Internet Information Server	In the NT 4.0 box
Index Server	In the NT 4.0 box
Message Queue Server	www.microsoft.com
Transaction Server	www.microsoft.com
NetShow	In the NT 4.0 box
Routing and Remote Access Service	www.microsoft.com

Such is also the case with the Microsoft Routing and Remote Access Service (RRAS), says Mike Todd, president of Northwind Consulting, Inc., a systems integration firm in Kirkland, Wash. RRAS — software formerly code-named Steelhead that turns an NT 4.0 server into a low-end multiprotocol router — has been available free from the Web since June.

"It could be a strong answer in a remote office for adding routing services for four to five users. But Cisco [Systems, Inc.] has got nothing to worry about in the corporate backbone," Todd says.

He points out that most companies he works with are not yet looking to deploy RRAS anywhere because it is immature. That also is the case with other recent NT add-ons, the Microsoft Message Queue Server (MMQS) and the Microsoft Transaction Server (MTS), he says.

MMQS is an NT service that ensures store-and-forward connections among applications running on distributed NT servers. MTS coordinates interaction between server- and client-side application components. "My big customers have been using IBM's MQSeries for running apps on AIX for years. It's likely they'll go with that on NT because they know it works," Todd says.

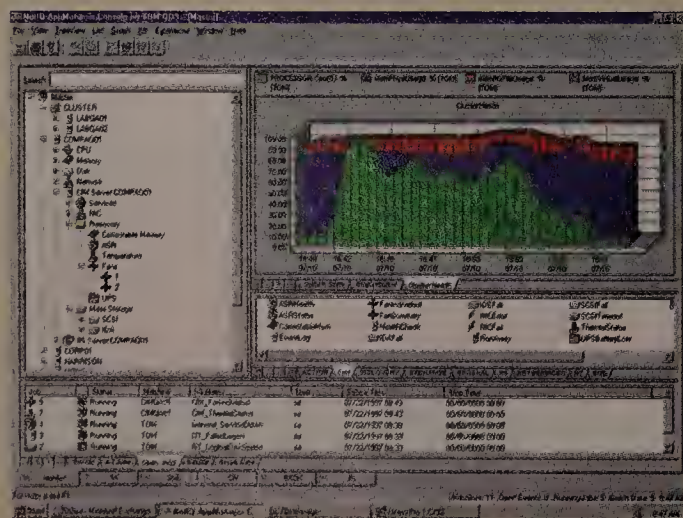
Industry observers note that the markets for some NT extras, such as Microsoft's on-demand multimedia server NetShow, haven't yet taken off.

"NetShow is unique. But it's not going to give NT an edge in any installations it wasn't already headed for," says Rob Enderle, an industry analyst with Giga Information Group in Santa Clara, Calif.

But Enderle says Microsoft will continue to deliver a variety of other free NT add-ons to get NT into more corporate accounts. ■

QUICK TAKE: APPMANAGER

NetIQ's enhanced application management suite



NetIQ Corp. will enhance its NT application management suite, AppManager, to monitor the new Microsoft Corp. clustering transaction monitoring and message queuing services expected to ship with Windows NT 4.0 Enterprise Edition this fall.

The AppManager suite comprises a Windows management console and agent modules. It gives administrators a centralized way to manage distributed NT servers running any BackOffice application. It provides error detection and correction tools, and real-time and historical monitoring.

The new version of AppManager — which will be available for customer testing later this month — will enable administrators to track when a clustered node goes offline, when and how the applications fail-over to the remaining node and when distributed applications are not running properly.

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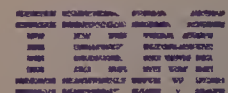
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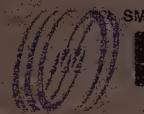
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Internetworks

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Briefs

■ **NetManage, Inc.**, of Cupertino, Calif., is releasing **Chameleon Hostlink 97** software, which supports Windows-to-IBM Mainframe and AS/400 application access via any industry Web browser.



New Chameleon features include remote administrator control, automated installation tools and ActiveX Controls with 3270 and 5250 terminal emulation. The product is currently available and costs \$299.

& NetManage: (408) 973-7171

■ **Hewlett-Packard Co.** recently announced an alliance with **UniPrise Systems, Inc.** to add Oracle Corp. and Informix Software, Inc. database management capabilities to its OpenView management software.

The UniPrise software will enable OpenView users to install and configure Oracle and Informix databases and collect more than 600 database metrics (NW, June 23, page 1). The software also enables a database operator to adjust the monitoring intensity across multiple thresholds at once — rather than adjusting each threshold manually.

HP OpenView with the UniPrise software will be available this month. Pricing will range from about \$500 to \$12,000.

& HP: (800) 752-0900

■ **Irvine, Calif.-based Arcxel Technologies, Inc.** last week unveiled the **AGS/8 Fibre Channel Fabric** switch that offers improved fiber connectivity options. Among the features of the AGS/8 are full-gigabit data transfer speeds and support for multiple classes of Fibre Channel service.

The AGS/8 can be managed by an SNMP console or with a common Web browser.

AGS/8 is available now and costs \$2,950 per port for an eight-port copper unit.

& Arcxel (714) 475-4350

Enterprise Networking

Frame Relay Technologies rolls out inexpensive IP switch line

By Tim Greene
Costa Mesa, Calif.

Frame Relay Technologies, Inc. (FRT) has introduced a new line of IP switches that promise faster throughput and cost one-tenth of the company's previous generation switches.

The new FrameSwitch 1500s are priced between \$2,000 and \$3,000 and replace FRT's 1200 series models, which cost about \$20,000, according to Abdul Aljaff, FRT's chief operating officer.

Flynn said that while the FRT hardware in his network was reliable and easy to configure, earlier versions lacked SNMP support, which made managing the devices difficult. SNMP support has been added to the 1500 models.

The 1500 switches will sit at the edge of a WAN and link to the user side with a local router, bridge or other LAN gear.

Hardware modules for the switches support TCP/IP, Xerox Corp.'s Xerox Network Systems, IPX, X.25, SNA, High-level Data

Link Control or Synchronous Data Link Control and framed voice and video, as well as asynchronous interfaces.

The switches also can link to frame relay access devices or other data equipment that supports standard frame relay user interfaces.

Easy to use

Flynn also said his FRT gear was easy to set up.

That is in part because it automatically learns local and remote Data Link Connection Identifier information from the switches in public frame relay networks. This eliminates the need for the user to configure it manually.

In addition, the switches detect line failures and switch traffic around without user intervention.

Four quality-of-service levels are configurable by port. But the company plans to support service quality later depending on the subnet traffic from which it originates, Aljaff said.

The FrameSwitch 1500 series can support four or eight ports. The four-port 1504 chassis can be factory upgraded to the eight-port model 1508.

Later this year, FRT also plans to add hardware support for DS-1 ATM interfaces for users that prefer a cell-based network backbone.

© FRT: (714) 668-0222

IP SWITCHING OVER FRAME RELAY

Frame Relay Technologies' new FrameSwitch 1500 series features:

- IP switching over frame relay
- Support for multiple PVCs per DLCI
- Four qualities of service
- Four- or eight-port configurations
- Price: FrameSwitch 1504, \$1,995 plus \$500-\$750 per port; FrameSwitch 1508, \$2,995 plus \$500-\$750 per port
- Available now

In addition, the switches support frame relay as their primary transport method. Frame relay is cheaper than ATM, which is the typical wide-area transport in most IP switching schemes.

For example, Cisco Systems, Inc.'s Tag Switching, Ipsilon Networks, Inc.'s IP Switching and IBM's ARIS all are designed to run on ATM nets.

FRT's proprietary IP switching makes for a faster network. It reduces the number of Layer 3 route table lookups and caches that would be required in a routed network, according to Dennis Flynn, network manager for Furon Corp., a polymer manufacturer based in Laguna Niguel, Calif., which uses FRT gear.

Instead, FRT's IP switching relies on a two-byte Layer 2 header that enables cut-through switching across a FrameSwitch network.

Envive unveils SAP R/3 application manager

Inspector recommends fixes to performance problems.

By Jim Duffy
Los Altos, Calif.

Envive Corp. this week will become the latest entrant into the SAP R/3 management arena. The company plans to unveil software designed to ensure that the business re-engineering package delivers appropriate service levels.

Called Envive Inspector, Envive's software goes beyond the monitoring and problem detection of other SAP R/3 management products on the market to provide diagnostics, root-cause analysis and recommended actions, said Envive chairman Charles Koo.

"It gives you detailed instructions on what to do when you do find something," said Kevin Richardson, Unix and SAP R/3 technical manager at M/A-COM in Massachusetts. "It's just not, 'Here's a problem, now go figure it out.'"

Envive Inspector agents run on SAP R/3 application and database servers. The product also features an Informix Software, Inc. data repository and a Java-based graphical user interface that can run on laptops, PCs and workstations.

Analyzing events

The software is designed to provide automated diagnosis, predictive analysis and service-level reporting of SAP R/3 environments. For example, if system response time is poor, it may be due to a long-running transaction.

When a SAP R/3 transaction alert appears in the Inspector console, an administrator double-clicks on the alert to see its causal relationships. A performance correlation window then pops up showing that a database statement is causing the transaction to run long.

When the administrator double-clicks on the long-running database statement, a window showing details of the root cause of the alert appears.

The administrator can then select a "Recommendation" tab from this window to view Inspector's solution recommendation.

An elite group

Though many companies — including management heavyweights BMC Corp., Computer Associates International, Inc., Hewlett-Packard Co. and IBM's Tivoli Systems, Inc. subsidiary — are addressing SAP R/3 performance management, Envive joins Luminate Software Corp. specifically in the SAP R/3 service-level management arena. Luminate recently unveiled

Get more online:

- Product overviews and white papers from Envive and its competitors
- A look at the difficulties in moving client/server applications such as a SAP R/3 to the Web



Luminate for SAP R/3, software that collects end-to-end service-level metrics for SAP R/3 environments.

"[Envive] is the only product I've seen that not only monitors what's going on but tells you what to do about what's going on and delivers service-level statements," said Sue Aldrich, a research analyst and senior consultant at Patricia Seybold Group, Inc. in Boston.

"You'll see any of those elements separately from the other products except for the recommendations. I haven't seen anybody else providing recommendations," Aldrich said.

Pricing for Envive Inspector starts at \$40,000. The Service-Level Statements reporting component of Inspector costs an additional \$15,000.

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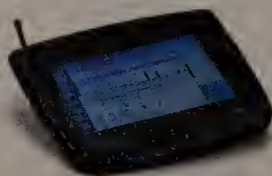
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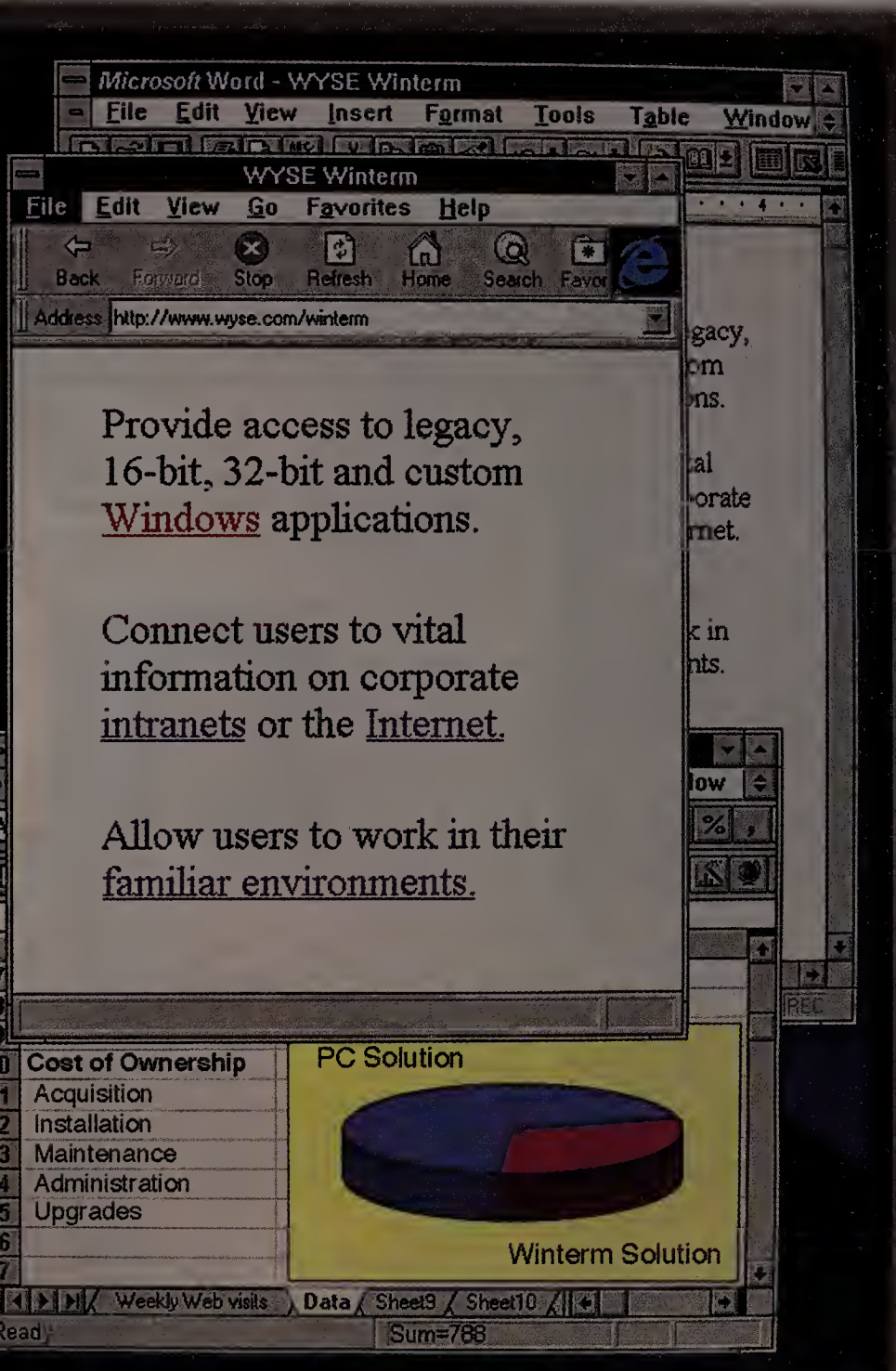


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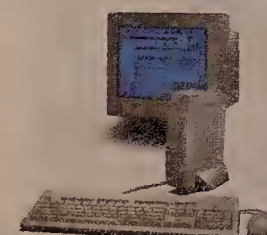
study proved that Winterm terminals can lower your total cost of ownership by

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WYSE



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Winterm 2300
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INTERNETWORKING MONITOR

'MadgeNone' and the solutions dissolution

Only a year after the announcement of the MadgeOne architecture — the industry's most aggressive attempt at a "solutions" approach of tying voice,

video and data together — Madge Networks has thrown in the towel.

In a press release dated July 24, founder Robert Madge announced that

this company would become four autonomous divisions: Token Ring, Ethernet, Video Networking and Carrier Products (ISDN). In effect, MadgeOne will be

recast as "MadgeNone" (my name, not the company's).

"Madge will no longer try to compete in an overcrowded, end-to-end solutions market by trying to provide a full range of networking products to the general marketplace" is how Robert Madge put it. Madge is abandoning the solutions approach. Try finding a vendor that's said that in the past five years.

Is the solutions market merely overcrowded, or is the real problem that this marketplace is actually overrated? Should this decision by Madge be seen as a watershed event? Are we seeing that the solutions market has been pushed as far as it can go? Will other vendors soon follow Madge's lead?

Madge, with its acquisitions of LAN-NET and Teleos, was to form a multitopology, multiservice, powerhouse provider of LAN/WAN packages. The synergy would be astounding.

But now the new Madge is, in fact, the old Madge. The token-ring division is the original Madge, the Ethernet division is LANNET and the Video and Carrier divisions are Teleos. And each of these divisions will be run from its original headquarters thousands of miles apart.



Kevin Tolly

What happened here? It wasn't lack of product. The company always has delivered solid, innovative products. It must, again, be the market or the analysts were wrong. If there is a solutions market, it clearly does not extend into the realm of multiservices.

While solutions are nice, innovative products that add value and fill a need are better. That, in essence, is the redefinition of Madge.

Interestingly, the new Madge also is almost ATM-free — a radical turnabout for a company that was a strong proponent of ATM — even desktop 25M bit/sec ATM.

As the token-ring renaissance continues, I could not help but notice that rather than bury token ring in some enterprise, desktop or campus division, Madge formed a division dedicated to the technology.

In June, Madge was noncommittal about high-speed token ring, but now I expect that to change dramatically. As early as this month, we might see IBM unveil its divisionwide strategy for industry-standard, high-speed token ring. Once that happens, expect a flurry of activity from everyone else, too.

(Note: Kevin Tolly's column on IP and SNA scheduled for this week will appear in the Aug. 18 issue.)

Tolly is president of The Tolly Group, a strategic consulting and independent testing firm in Manasquan, N.J. He can be reached at (732) 528-3300 or via the Internet at ktolly@tolly.com or www.tolly.com.

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What is the principal business activity at your location? (check one only)

- | | |
|---|---|
| 01. <input type="checkbox"/> Manufacturing (other) | 12. <input type="checkbox"/> Government (Federal/State/Local) |
| 02. <input type="checkbox"/> Finance/Banking | 13. <input type="checkbox"/> Military |
| 03. <input type="checkbox"/> Insurance/Real Estate/Legal | 14. <input type="checkbox"/> Aerospace |
| 04. <input type="checkbox"/> Health Care Services | 15. <input type="checkbox"/> Consulting (Independent)* |
| 05. <input type="checkbox"/> Hospitality/Entertainment/Recreation | 16. <input type="checkbox"/> Carriers/Interconnects |
| 06. <input type="checkbox"/> Media/TV/Cable/Radio/Print | 17. <input type="checkbox"/> Internet Service Provider (ISP) |
| 07. <input type="checkbox"/> Retail/Wholesale Trade/Business Services | 18. <input type="checkbox"/> Manufacturing (Computer/Communications/OEM) |
| 08. <input type="checkbox"/> Transportation | 19. <input type="checkbox"/> Resellers of Computer/Network Products (VARs, AVADs) |
| 09. <input type="checkbox"/> Utilities | 20. <input type="checkbox"/> Systems/Network Integrators* |
| 10. <input type="checkbox"/> Education | 21. <input type="checkbox"/> Distributors (Computer/Communications)* |
| 11. <input type="checkbox"/> Process Industries (Mining/Construction/Petroleum Refining/Agriculture/Forestry) | 22. <input type="checkbox"/> Other (please specify) _____ |

*Please complete form based on largest client.

What is your job function? (check one only)

NETWORK IS MANAGEMENT:

- | | |
|--|---|
| 1. <input type="checkbox"/> Network Management | 6. <input type="checkbox"/> Engineering Management |
| 2. <input type="checkbox"/> LAN Management | 7. <input type="checkbox"/> Corporate Management (CEO, Pres., VP, Dir., Mgr., Financial Management) |
| 3. <input type="checkbox"/> Datacom/Telecom Management | 8. <input type="checkbox"/> Consultant (Independent) |
| 4. <input type="checkbox"/> IS, IT, MIS, CIO, Systems Master | 9. <input type="checkbox"/> Other (please specify) _____ |
| 5. <input type="checkbox"/> Internet/Intranet Management/Webmaster | |

What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of? (Please print the appropriate number code in the box next to each product category. Please complete ALL categories A-M.)

- | | | |
|-----------------------------------|---|--|
| 1. \$50 Million or more | A <input type="checkbox"/> Large Systems (Mainframes/Minis) | H <input type="checkbox"/> Internet |
| 2. \$25 Million to \$49.9 Million | B <input type="checkbox"/> Desktops (Micros/Laptops/Workstations) | I <input type="checkbox"/> Intranet |
| 3. \$10 to \$24.9 Million | C <input type="checkbox"/> Servers | J <input type="checkbox"/> Remote Access |
| 4. \$1 to \$9.9 Million | D <input type="checkbox"/> LANs | K <input type="checkbox"/> Peripherals |
| 5. \$100,000 to \$999,999 | E <input type="checkbox"/> WAN Equipment | L <input type="checkbox"/> Software |
| 6. \$50,000 to \$99,999 | F <input type="checkbox"/> Carrier Services | M <input type="checkbox"/> Service/Support |
| 7. Under \$50,000 | G <input type="checkbox"/> Internetworking | |
| 8. None of the above | | |

What is the total number of sites for which you have purchase influence? (check one only)

1. ☐ 100+ 2. ☐ 50 - 99 3. ☐ 20 - 49 4. ☐ 10 - 19 5. ☐ 2 - 9 6. ☐ 1 7. ☐ None

What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (Check one box in each column)

SERVERS		CLIENTS		LANs	
At Location	Entire Org.	At Location	Entire Org.	At Location	Entire Org.
A	B	C	D	E	F
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>

What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check one only)

1. ☐ Corporate/Enterprise
2. ☐ Department
3. ☐ None

B. Involvement (check ALL that apply)

1. ☐ Create Network Strategy
2. ☐ Recommend/Specify
3. ☐ Approve

4. ☐ Evaluate
5. ☐ Determine the need
6. ☐ None

What is the estimated number of employees at your location/in entire organization? (check one in each section)

A. At your location:

1. ☐ Over 20,000
2. ☐ 10,000 - 19,999
3. ☐ 5,000 - 9,999
4. ☐ 2,500 - 4,999

5. ☐ 1,000 - 2,499
6. ☐ 500 - 999
7. ☐ 499 or less

B. Entire organization:

1. ☐ Over 20,000
2. ☐ 10,000 - 19,999
3. ☐ 5,000 - 9,999
4. ☐ 2,500 - 4,999

5. ☐ 1,000 - 2,499
6. ☐ 500 - 999
7. ☐ 499 or less

8

Please indicate the products/services that you are currently involved in purchasing or plan to purchase:

A. Currently involved in purchasing

(Check ALL that apply)

B. Plan to purchase

INTERNET/INTRANET

- | | |
|--|---|
| A | B |
| <input type="checkbox"/> 01. <input type="checkbox"/> Internet Services | <input type="checkbox"/> 53. <input type="checkbox"/> Remote Access Products |
| <input type="checkbox"/> 02. <input type="checkbox"/> Firewalls/Security/Encryption | <input type="checkbox"/> 54. <input type="checkbox"/> Remote Access Services |
| <input type="checkbox"/> 03. <input type="checkbox"/> Internet Web Servers | <input type="checkbox"/> 55. <input type="checkbox"/> PDAs |
| <input type="checkbox"/> 04. <input type="checkbox"/> Intranet Web Servers | <input type="checkbox"/> 56. <input type="checkbox"/> PCMCIA Devices |
| <input type="checkbox"/> 05. <input type="checkbox"/> TCP/IP Software | <input type="checkbox"/> 57. <input type="checkbox"/> Wireless Data Services |
| <input type="checkbox"/> 06. <input type="checkbox"/> Management/Monitoring Software | <input type="checkbox"/> 58. <input type="checkbox"/> Wireless Data Equipment |
| <input type="checkbox"/> 07. <input type="checkbox"/> Push Technology | <input type="checkbox"/> 59. <input type="checkbox"/> Cellular Equipment & Services |
| <input type="checkbox"/> 08. <input type="checkbox"/> Web Browsers | |
| <input type="checkbox"/> 09. <input type="checkbox"/> Intranet Applications/Groupware | |
| <input type="checkbox"/> 10. <input type="checkbox"/> Search/Retrieval Products (web crawler) | |
| <input type="checkbox"/> 11. <input type="checkbox"/> Internet Development Tools (JAVA, ActiveX, etc.) | |
| <input type="checkbox"/> 12. <input type="checkbox"/> Electronic Commerce Tools | |
| <input type="checkbox"/> 13. <input type="checkbox"/> Internet Telephony | |

LOCAL-AREA NETWORKS

- | | |
|---|--|
| A | B |
| <input type="checkbox"/> 14. <input type="checkbox"/> Local-Area Networks | <input type="checkbox"/> 60. <input type="checkbox"/> Network Management |
| <input type="checkbox"/> 15. <input type="checkbox"/> Network Operating System Software | <input type="checkbox"/> 61. <input type="checkbox"/> Systems Management |
| <input type="checkbox"/> 16. <input type="checkbox"/> Servers | <input type="checkbox"/> 62. <input type="checkbox"/> Security |
| <input type="checkbox"/> 17. <input type="checkbox"/> Print Servers | <input type="checkbox"/> 63. <input type="checkbox"/> Communications Software |
| <input type="checkbox"/> 18. <input type="checkbox"/> ATM Switches | <input type="checkbox"/> 64. <input type="checkbox"/> Terminal Emulation |
| <input type="checkbox"/> 19. <input type="checkbox"/> Token-Ring Switches | <input type="checkbox"/> 65. <input type="checkbox"/> Operating Systems |
| <input type="checkbox"/> 20. <input type="checkbox"/> Ethernet Switches | <input type="checkbox"/> 66. <input type="checkbox"/> Applications Development Tools |
| <input type="checkbox"/> 21. <input type="checkbox"/> Fast Ethernet | <input type="checkbox"/> 67. <input type="checkbox"/> Database Management/RDBMS |
| <input type="checkbox"/> 22. <input type="checkbox"/> Gigabit Ethernet | <input type="checkbox"/> 68. <input type="checkbox"/> Groupware |
| <input type="checkbox"/> 23. <input type="checkbox"/> IP Switches | <input type="checkbox"/> 69. <input type="checkbox"/> Workflow |
| <input type="checkbox"/> 24. <input type="checkbox"/> LAN Storage/Backup | <input type="checkbox"/> 70. <input type="checkbox"/> EDI |
| <input type="checkbox"/> 25. <input type="checkbox"/> Optical LAN Storage/Backup | <input type="checkbox"/> 71. <input type="checkbox"/> E-mail |
| <input type="checkbox"/> 26. <input type="checkbox"/> Disk LAN Storage/Backup | <input type="checkbox"/> 72. <input type="checkbox"/> Desktop Video Conferencing |
| <input type="checkbox"/> 27. <input type="checkbox"/> Tape LAN Storage/Backup | <input type="checkbox"/> 73. <input type="checkbox"/> Imaging |
| <input type="checkbox"/> 28. <input type="checkbox"/> RAID LAN Storage/Backup | <input type="checkbox"/> 74. <input type="checkbox"/> Suites/Server Suites (Back Office, etc.) |
| <input type="checkbox"/> 29. <input type="checkbox"/> Network Test/Diagnostic Tools | <input type="checkbox"/> 75. <input type="checkbox"/> Middleware |
| <input type="checkbox"/> 30. <input type="checkbox"/> Cables, Connectors, Baluns | <input type="checkbox"/> 76. <input type="checkbox"/> Document Management |
| <input type="checkbox"/> 31. <input type="checkbox"/> UPS | <input type="checkbox"/> 77. <input type="checkbox"/> Site Metering Tools |
| <input type="checkbox"/> 32. <input type="checkbox"/> Network Interface Cards | <input type="checkbox"/> 78. <input type="checkbox"/> Computer Telephony Integration (CTI) |
| <input type="checkbox"/> 33. <input type="checkbox"/> SNMP Network Management | <input type="checkbox"/> 79. <input type="checkbox"/> Data Warehousing |

INTERNETWORKING

- | | |
|---|--|
| A | B |
| <input type="checkbox"/> 34. <input type="checkbox"/> Routers | <input type="checkbox"/> 80. <input type="checkbox"/> Modems |
| <input type="checkbox"/> 35. <input type="checkbox"/> Hubs | <input type="checkbox"/> 81. <input type="checkbox"/> Asynchronous Transfer Mode (ATM) |
| <input type="checkbox"/> 36. <input type="checkbox"/> Intelligent Hubs | <input type="checkbox"/> 82. <input type="checkbox"/> Frame Relay Equipment/Services |
| <input type="checkbox"/> 37. <input type="checkbox"/> Stackable Hubs | <input type="checkbox"/> 83. <input type="checkbox"/> ISDN Equipment & Services |
| <input type="checkbox"/> 38. <input type="checkbox"/> Bridge/Router | <input type="checkbox"/> 84. <input type="checkbox"/> FT-1/T-1/T-3 Multiplexers/Services |
| <input type="checkbox"/> 39. <input type="checkbox"/> Bridges | <input type="checkbox"/> 85. <input type="checkbox"/> DSL Services/Products |
| <input type="checkbox"/> 40. <input type="checkbox"/> Gateways | <input type="checkbox"/> 86. <input type="checkbox"/> SONET |
| <input type="checkbox"/> 41. <input type="checkbox"/> Concentrators/Repeaters | <input type="checkbox"/> 87. <input type="checkbox"/> Inverse Multiplexers |

COMPUTERS/PERIPHERALS

- | | |
|--|--|
| A | B |
| <input type="checkbox"/> 42. <input type="checkbox"/> Network Computers | <input type="checkbox"/> 88. <input type="checkbox"/> SMDS |
| <input type="checkbox"/> 43. <input type="checkbox"/> Laptops/Notebooks/Sub-Notebooks | <input type="checkbox"/> 89. <input type="checkbox"/> Diagnostic/Test Equipment |
| <input type="checkbox"/> 44. <input type="checkbox"/> Micros/PCs | <input type="checkbox"/> 90. <input type="checkbox"/> DSU/CSU |
| <input type="checkbox"/> 45. <input type="checkbox"/> Minis | <input type="checkbox"/> 91. <input type="checkbox"/> VSAT/Satellite |
| <input type="checkbox"/> 46. <input type="checkbox"/> Mainframes | <input type="checkbox"/> 92. <input type="checkbox"/> PBXs |
| <input type="checkbox"/> 47. <input type="checkbox"/> Workstations | <input type="checkbox"/> 93. <input type="checkbox"/> Voice Mail/Response |
| <input type="checkbox"/> 48. <input type="checkbox"/> Printers/Network Printers | <input type="checkbox"/> 94. <input type="checkbox"/> Videoconferencing |
| <input type="checkbox"/> 49. <input type="checkbox"/> CD-ROM | <input type="checkbox"/> 95. <input type="checkbox"/> Leased Lines |
| <input type="checkbox"/> 50. <input type="checkbox"/> Fax/Modem Boards | <input type="checkbox"/> 96. <input type="checkbox"/> Switched Data |
| <input type="checkbox"/> 51. <input type="checkbox"/> Graphics/Multimedia/Audio/Video Boards | <input type="checkbox"/> 97. <input type="checkbox"/> Virtual Networks |
| <input type="checkbox"/> 52. <input type="checkbox"/> Memory/Chips/Boards/Cards | <input type="checkbox"/> 98. <input type="checkbox"/> Outsourcing/Systems Integration Services |
| | <input type="checkbox"/> 99. <input type="checkbox"/> Education/Training Services |

REMOTE/WIRELESS COMPUTING

- | | |
|---|--|
| A | B |
| <input type="checkbox"/> 53. <input type="checkbox"/> Remote Access Products | <input type="checkbox"/> 00. <input type="checkbox"/> None of the above (1 - 99) |
| <input type="checkbox"/> 54. <input type="checkbox"/> Remote Access Services | |
| <input type="checkbox"/> 55. <input type="checkbox"/> PDAs | |
| <input type="checkbox"/> 56. <input type="checkbox"/> PCMCIA Devices | |
| <input type="checkbox"/> 57. <input type="checkbox"/> Wireless Data Services | |
| <input type="checkbox"/> 58. <input type="checkbox"/> Wireless Data Equipment | |
| <input type="checkbox"/> 59. <input type="checkbox"/> Cellular Equipment & Services | |

SOFTWARE/APPLICATIONS

- | | |
|--|---|
| A | B |
| <input type="checkbox"/> 60. <input type="checkbox"/> Network Management | |
| <input type="checkbox"/> 61. <input type="checkbox"/> Systems Management | |
| <input type="checkbox"/> 62. <input type="checkbox"/> Security | |
| <input type="checkbox"/> 63. <input type="checkbox"/> Communications Software | |
| <input type="checkbox"/> 64. <input type="checkbox"/> Terminal Emulation | |
| <input type="checkbox"/> 65. <input type="checkbox"/> Operating Systems | |
| <input type="checkbox"/> 66. <input type="checkbox"/> Applications Development Tools | |
| <input type="checkbox"/> 67. <input type="checkbox"/> Database Management/RDBMS | |
| <input type="checkbox"/> 68. <input type="checkbox"/> Groupware | |
| <input type="checkbox"/> 69. <input type="checkbox"/> Workflow | |
| <input type="checkbox"/> 70. <input type="checkbox"/> EDI | |
| <input type="checkbox"/> 71. <input type="checkbox"/> E-mail | |
| <input type="checkbox"/> 72. <input type="checkbox"/> Desktop Video Conferencing | |
| <input type="checkbox"/> 73. <input type="checkbox"/> Imaging | |
| <input type="checkbox"/> 74. <input type="checkbox"/> Suites/Server Suites (Back Office, etc.) | |
| <input type="checkbox"/> 75. <input type="checkbox"/> Middleware | |
| <input type="checkbox"/> 76. <input type="checkbox"/> Document Management | |
| <input type="checkbox"/> 77. <input type="checkbox"/> Site Metering Tools | |
| <input type="checkbox"/> 78. <input type="checkbox"/> Computer Telephony Integration (CTI) | |
| <input type="checkbox"/> 79. <input type="checkbox"/> Data Warehousing | |

WIDE-AREA NETWORK EQUIPMENT & SERVICES

- | | |
|--|---|
| A | B |
| <input type="checkbox"/> 80. <input type="checkbox"/> Modems | |
| <input type="checkbox"/> 81. <input type="checkbox"/> Asynchronous Transfer Mode (ATM) | |
| <input type="checkbox"/> 82. <input type="checkbox"/> Frame Relay Equipment/Services | |
| <input type="checkbox"/> 83. <input type="checkbox"/> ISDN Equipment & Services | |
| <input type="checkbox"/> 84. <input type="checkbox"/> FT-1/T-1/T-3 Multiplexers/Services | |
| <input type="checkbox"/> 85. <input type="checkbox"/> DSL Services/Products | |
| <input type="checkbox"/> 86. <input type="checkbox"/> SONET | |
| <input type="checkbox"/> 87. <input type="checkbox"/> Inverse Multiplexers | |
| <input type="checkbox"/> 88. <input type="checkbox"/> SMDS | |
| <input type="checkbox"/> 89. <input type="checkbox"/> Diagnostic/Test Equipment | |
| <input type="checkbox"/> 90. <input type="checkbox"/> DSU/CSU | |
| <input type="checkbox"/> 91. <input type="checkbox"/> VSAT/Satellite | |
| <input type="checkbox"/> 92. <input type="checkbox"/> PBXs | |
| <input type="checkbox"/> 93. <input type="checkbox"/> Voice Mail/Response | |
| <input type="checkbox"/> 94. <input type="checkbox"/> Videoconferencing | |
| <input type="checkbox"/> 95. <input type="checkbox"/> Leased Lines | |
| <input type="checkbox"/> 96. <input type="checkbox"/> Switched Data | |
| <input type="checkbox"/> 97. <input type="checkbox"/> Virtual Networks | |
| <input type="checkbox"/> 98. <input type="checkbox"/> Outsourcing/Systems Integration Services | |
| <input type="checkbox"/> 99. <input type="checkbox"/> Education/Training Services | |

9

Please indicate the platforms that are currently installed/planned:

(Check ALL that apply)

A. Currently installed

B. Planned for purchase

NETWORK PROTOCOLS

- | | |
|--|--|
| A | B |
| <input type="checkbox"/> 01. <input type="checkbox"/> TCP/IP | <input type="checkbox"/> 25. <input type="checkbox"/> Windows NT |
| <input type="checkbox"/> 02. <input type="checkbox"/> IPv6 | <input type="checkbox"/> 26. <input type="checkbox"/> Windows NT/Advanced Server |
| <input type="checkbox"/> 03. <input type="checkbox"/> SNA | <input type="checkbox"/> 27. <input type="checkbox"/> Novell IntranetWare |
| <input type="checkbox"/> 04. <input type="checkbox"/> DECnet | <input type="checkbox"/> 28. <input type="checkbox"/> Novell (NetWare 4.X) |
| <input type="checkbox"/> 05. <input type="checkbox"/> Novell IPX/SPX | <input type="checkbox"/> 29. <input type="checkbox"/> Novell (NetWare 2.X, 3.X) |
| <input type="checkbox"/> 06. <input type="checkbox"/> APPC/APPN/LLU 6.2 | <input type="checkbox"/> 30. <input type="checkbox"/> Microsoft (LAN Manager) |
| <input type="checkbox"/> 07. <input type="checkbox"/> NETBIOS | <input type="checkbox"/> 31. <input type="checkbox"/> LocalTalk (AppleTalk) |
| <input type="checkbox"/> 08. <input type="checkbox"/> AppleTalk | <input type="checkbox"/> 32. <input type="checkbox"/> Banyan (VINES) |
| <input type="checkbox"/> 09. <input type="checkbox"/> NFS | <input type="checkbox"/> 33. <input type="checkbox"/> IBM (LAN Server) |
| <input type="checkbox"/> 10. <input type="checkbox"/> Other (please specify) _____ | <input type="checkbox"/> 34. <input type="checkbox"/> Artisoft (LANtastic) |
| | <input type="checkbox"/> 35. <input type="checkbox"/> Other (please specify) _____ |

LAN ENVIRONMENT

- | | |
|--|--|
| A | B |
| <input type="checkbox"/> 11. <input type="checkbox"/> Gigabit Ethernet | <input type="checkbox"/> 36. <input type="checkbox"/> NT Server |
| <input type="checkbox"/> 12. <input type="checkbox"/> Switched Ethernet | <input type="checkbox"/> 37. <input type="checkbox"/> NT Workstation |
| <input type="checkbox"/> 13. <input type="checkbox"/> Fast Ethernet (100 Megabit Ethernet) | <input type="checkbox"/> 38. <input type="checkbox"/> Unix/Xenix/AIX |
| <input type="checkbox"/> 14. <input type="checkbox"/> Ethernet | <input type="checkbox"/> 39. <input type="checkbox"/> Solaris |
| <input type="checkbox"/> 15. <input type="checkbox"/> ATM | <input type="checkbox"/> 40. <input type="checkbox"/> Windows |
| <input type="checkbox"/> 16. <input type="checkbox"/> Token Ring/Token Ring Switching | <input type="checkbox"/> 41. <input type="checkbox"/> Windows 95 |
| <input type="checkbox"/> 17. <input type="checkbox"/> IP Switching | <input type="checkbox"/> 42. <input type="checkbox"/> Windows 97 |
| <input type="checkbox"/> 18. <input type="checkbox"/> FDDI | <input type="checkbox"/> 43. <input type="checkbox"/> DOS |
| <input type="checkbox"/> 19. <input type="checkbox"/> 100Base-T | <input type="checkbox"/> 44. <input type="checkbox"/> OS/2/OS/2 Warp |
| <input type="checkbox"/> 20. <input type="checkbox"/> 10Base-T | <input type="checkbox"/> 45. <input type="checkbox"/> IBM MVS/VM/VSE |
| <input type="checkbox"/> 21. <input type="checkbox"/> LocalTalk | <input type="checkbox"/> 46. <input type="checkbox"/> Digital VMS |
| <input type="checkbox"/> 22. <input type="checkbox"/> Fibre Channel | <input type="checkbox"/> 47. <input type="checkbox"/> Macintosh |
| <input type="checkbox"/> 23. <input type="checkbox"/> 100vg Any LAN | <input type="checkbox"/> 48. <input type="checkbox"/> Other (please specify) _____ |
| <input type="checkbox"/> 24. <input type="checkbox"/> Other (please specify) _____ | <input type="checkbox"/> 49. <input type="checkbox"/> None of the above (1-48) |

10

Which of the following Servers/Clients do you have installed/planned at your location? (check ALL that apply in each column)

A. Servers		B. Clients	
01. <input type="checkbox"/> Power PC	<input type="checkbox"/>	07. <input type="checkbox"/> 486	<input type="checkbox"/>
02. <input type="checkbox"/> Power Mac	<input type="checkbox"/>	08. <input type="checkbox"/> 386	<input type="checkbox"/>
03. <input type="checkbox"/> Mac Other	<input type="checkbox"/>	09. <input type="checkbox"/> 286	<input type="checkbox"/>

Please indicate the names and job functions of other individuals at your location to whom you would like us to send a copy of **NetworkWorld**.

Name _____	Job Function _____
Name _____	Job Function _____
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Name _____	Job Function _____
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Briefs

■ MCI Communications

Corp.'s Vinton Cerf, senior vice president for Internet architecture and engineering, and Jonathan Sallet, chief policy counsel, released the company's 42-page

Internet Policy Vision

paper late last month. The paper includes public and corporate Internet policies.



'Net policy paper

MCI claimed the paper is a blueprint for other public network service providers and corporate Internet policy makers.

■ **American Communications Services, Inc. (ACSI)**, an Annapolis Junction, Md.-based competitive local exchange carrier, announced last week that it is offering **bundled Internet access** and telecommunications services in Florida. E.spire, ACSI's package of services, includes e.spire Internet access, frame relay, ATM, Web hosting, LAN-to-LAN routing and managed firewall services.

Users will receive a single bill for all e.spire services. While e.spire will initially be limited to Florida, ACSI plans to roll out the service in other markets once it works out all the kinks, said Vernon Irvin, senior vice president of advanced data division at ACSI. Services range in price from about \$300 to \$20,000 per month.

© ACSI: (888) 637-7473

■ **Seattle-based Active Voice Corp.**, a maker of PC-based voice processing systems, signed a technology and marketing **partnership deal** with network fax vendor **Omtool** of Salem, N.H. Under the agreement, Active Voice will sell Omtool's Fax Sr. for Windows NT server and incorporate Omtool's fax technology into its Windows NT-based voice messaging server.

Trouble haunts the 'Net

Brownouts, fiber cuts and congestion are becoming typical.

By Denise Pappalardo

Is the Internet melting?

Some recent Internet trouble, ranging from equipment failures on UUNET Technologies' network and a fiber cut on Sprint Corp.'s network in Louisiana to the Internet Domain Name System mishap (NW, July

21, page 8) may lead users to believe this is true.

The fact is the Internet is still a "best effort" network, but it is better than it was six to nine months ago, said Eric Paulak, senior analyst at Gartner Group, Inc., a Stamford, Conn.-based consulting firm.

It's getting better, but it's still not great

Inverse Networks released its nationwide dial-up Internet access test results late last month that showed Internet service providers are working to improve connectivity, but more needs to be done.

ISP	Busy signal	Ring/no answer	Logon failed	Total failures
IBM Global Service	1.6%	0.4%	3.0%	3.2%
CompuServe	0.1%	2.2%	1.6%	5.7%
Sprint	0.9%	1.0%	3.0%	8.3%
Concentric	4.7%	2.2%	1.2%	8.4%
AT&T	4.1%	4.7%	1.2%	10.5%
Netcom	4.0%	3.6%	2.3%	10.6%

Hundt gives blessing to BT/MCI merger

By David Rohde

Washington, D.C.

Outgoing Federal Communications Commission Chairman Reed Hundt last week threw his support behind the proposed merger of British Telecommunications plc and MCI Communications Corp.

One of the concessions recently made by BT, partly to gain Hundt's support, could result in an immediate user benefit for those with operations in the U.K., even if they do not deal with BT or MCI.

BT reduced the rate it charges foreign carriers for terminating calls in Britain from 11 cents to 7 cents per minute. Akin to the 2- to 3-cent-per-minute access fees charged by U.S. local carriers to complete domestic long-distance calls, BT's settlement rate in effect sets a floor under typically expensive international connections. In many other countries, the comparable settlement rate ranges

between 25 and 40 cents, or even more.

BT and MCI also committed to making substantial capacity on a key trans-Atlantic submarine cable available to newly licensed competitors. And MCI agreed to provide these new competitors with adequate matching back-haul capacity in the U.S.



FCC's Hundt

"BT's and MCI's commitments and the opportunities that exist for their competitors in the United States and the United Kingdom will safeguard the interests of American consumers in the context of the merger," Hundt said in a statement. "Under these conditions, I personally endorse swift approval of the merger."

Although Hundt recently announced his resignation, he is staying onboard at the FCC until President Clinton appoints his successor and the Senate confirms the nomination. The FCC

The Internet is expanding with most Internet service providers adding bandwidth and high-capacity switches, Paulak said. "[But] problems will continue with every ISP," he added. With the incredible growth of the 'Net, industry watchers sometimes forget it has only been used for commercial purposes for a few short years.

ISPs will ultimately have redundant networks that will move the Internet from a best effort to a solid, more reliable network, but it is a work in progress.

"Look at today's [public switched telephone network]," Paulak said. "It's taken 140 years to build out that network to its full capabilities, yet we still have fiber cuts."

But the reason why we rarely lose phone service is because the PSTN is redundant. Telephone traffic on a fiber-optic circuit that has just been cut by a construction crew is automatically rerouted to another fiber ring. Paulak believes the Internet will have similar support further down the road.

"We expect the outages regardless of the source," said Dave Pivelait, vice president for media and community relations at BOAT/U.S., the boat owners association of the U.S. "If it's an InterNIC problem or a specific ISP problem, we take them in stride," he said.

BOAT/U.S., a UUNET Web hosting customer, sees about 1,500 users on its Web site daily, Pivelait said. Although UUNET's network woes have been frequent recently, BOAT/U.S. said it has not experienced any major disruptions.

In late June, routers in several UUNET hubs experienced memory failures and shut down causing the routers to drop lots of traffic. UUNET also had trouble with its frame relay switch just a couple of weeks later, causing further network woes for the Fairfax, Va.-based ISP (NW, July 7, page 10). What users have to keep in mind is that "the Internet is only going to be as good [as the company that] provides the network service," Paulak said. "The Internet is not perfect, so your ISP should offer you the next best thing."

If your company is looking to put some of its business applications or services on the 'Net, analysts recommend you take the time to find out which ISP is going to offer you the best service level agreement. Do not settle — sign with an ISP that will offer network availability and even low latency, Paulak said.

Users' expectations are realistic, they know the Internet is not as reliable as a dedicated private line, but it does offer them many more options, said Rebecca Wetzel, director of Internet consulting at TeleChoice, Inc., a Verona, N.J.-based consultancy. ■

Get more online:

- The results of a study on the response times of major U.S. backbones
- Dueling columns from Bob Metcalfe and Scott Bradner on whether the Internet is cruising for a bruising
- One ISP's anatomy of a major outage and how it was fixed

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EYE ON THE CARRIERS

A partnership guide for voice and data vendors

History of sorts was made recently when 3Com CEO Eric Benhamou interrupted a South American business trip to announce over the phone a partnership with Germany's Siemens AG, whose U.S. unit is the nation's third-largest PBX vendor.

Benhamou's announcement completed a new alignment of the stars in which the top three internetworking vendors other than Cisco have taken one of the three leading PBX vendors as partners.

The lineup looks like this: Bay is sharing technology, marketing and network integration opportunities with Lucent. Cabletron has a product development deal with Northern Telecom. And now 3Com is aligned with Siemens in a pact to introduce as-yet-unspecified products to unify corporate voice and data networks by this time next year.

No question about it: Voice is hot, and even computer makers now know that the U.S. telephony market is worth nearly \$200 billion a year. But no one knows whether Internet telephony, PBX-server integration or wavelength-division multi-

plexing in the circuit-switched public network will be the next great telecom breakthrough. So router, switch and PBX vendors are anxious to cover their bases as they seek the path to voice-data integration.

But a word of advice to Bay, Cabletron and 3Com: Don't put too much stock in these PBX partnerships. I've heard it said that companies on both sides of the voice-data divide are all in the same enterprise networking boat now. Right, and everyone will have a cheap T-1 to their home next year, the Bell companies will start competing against one another and the AT&T executive search committee is going to appoint Bill Gates to replace Bob Allen.

We're still talking about different cultures here, and the internetworking vendors should remember these five points:

- The PBX vendors have a horrible record on alliances with computer makers. Recently, an alliance among Siemens,

Lucent, IBM and Apple with the name of Versit (a silly play on the word "diversity") collapsed, more out of sheer boredom than anything else.

They spent too much time working on projects such as a standard electronic business card that no one really cared about, rather than truly opening up notoriously proprietary voice platforms.

- If the networking business is like a race to the moon, the PBX business is akin to trench warfare in France in World War I. With market shares practically fossilized at one-quarter each for Lucent and Nortel, 15% for Siemens and crumbs for everyone else, these guys literally will spend years eking out an additional 1% in the pie charts. In that environment, they have nothing to lose and everything to gain by associating with a marquee networking company like you.

Unfortunately, the darn phone systems work, which means sales cycles are excruciatingly long. My company took

two years to select a replacement PBX.

- PBX makers stopped speaking English about a year and a half ago, banishing the term PBX from the industry as embarrassingly declassé. I hope you know what they're saying when they talk about TCP/IP and Ethernet links to their "enterprise communication servers" because at the last PBX user conference I attended, the audience was confused as hell.

- If your alliance comes up with a new product, take a second look at it before proceeding to market. Many "solutions" in the field of computer-telephone integration have the bizarre quality of taking existing voice and data platforms and linking them via a reverse double somersault with 3 1/2 twists leading to a half nelson during a full moon with a degree of difficulty of 2.9.

Then the vendors wonder why no one buys them despite hysterical hype in the telecom trade press and computer-telephone integration trade shows.

Best of luck on your PBX alliances, Bay, Cabletron and 3Com. They could be ones for the history books — provided history doesn't repeat itself.

Rohde is Network World senior editor of Carriers & ISPs. He can be reached at david_rohde@nw.com.



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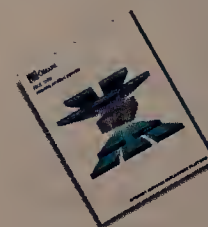
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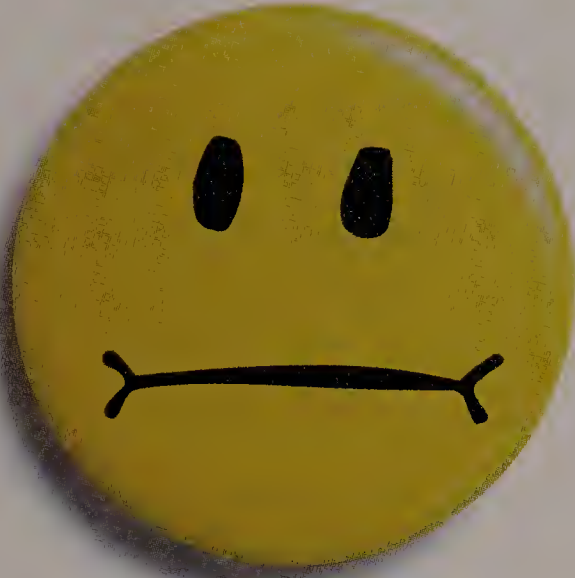
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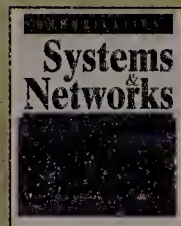
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Briefs

■ **Entrust Technologies, Ltd.** last week made available



Entrust CTO
O'Higgins

Entrust/Solo, software that lets users encrypt their Internet e-mail and files using CAST, the 128-bit encryption algorithm, the 56-bit Data Encryption Standard or Triple-DES standard.

Entrust/Solo is free for non-commercial users and corporate evaluation at www.entrust.com. The Canadian government has given Entrust approval to export the encryption software to most countries around the world.

■ **Trusted Information Systems, Inc.** has started shipping *RecoverKey*. This application tool kit is used for setting up secured data-recovery centers to decrypt data scrambled with the TIS-patented *RecoverKey* method. & TIS: (301) 527-9500

■ **Wilson WindowWare, Inc.** of Seattle last week released *WinBatch 97*, a development tool that lets users write scripts for manipulating Open Database Connectivity-compliant databases and manage serial communications automatically in applications. The *WinBatch* core language features 337 functions, with extender modules adding another 350. *WinBatch 97* costs \$99.95 for a single user.

& Wilson WindowWare: (800) 762-8383

■ **Naked Software Design Studios**, an Australian start-up, has released *iNETstore 2.5*, software that enables nonprogrammers to create online shops and catalogs with full search, filter and sorting capabilities. It also features secure ordering with little or no HTML editing through the use of a template system. *iNETstore* runs on Windows 95 or NT 4.0 and costs \$495 for a single-user license.

Document mgmt. suite takes off at Sikorsky Aircraft

By Paul McNamara
Stamford, Conn.

Each year, Susan Massimino's shop at Sikorsky Aircraft Corp. needs to input, store and manage some 10,000 contracts, most of which involve the undisputed potentate of red tape: Uncle Sam.

Keeping tabs on that mountain of data using a hodgepodge of tools and paper-pushers proved unproductive and expensive, so Sikorsky's Contracts and Counsel Department went looking for an integrated answer. What it ultimately found was *Discovery Suite*, a document management, imaging and workflow package from Costa Mesa, Calif.-based FileNet Corp.

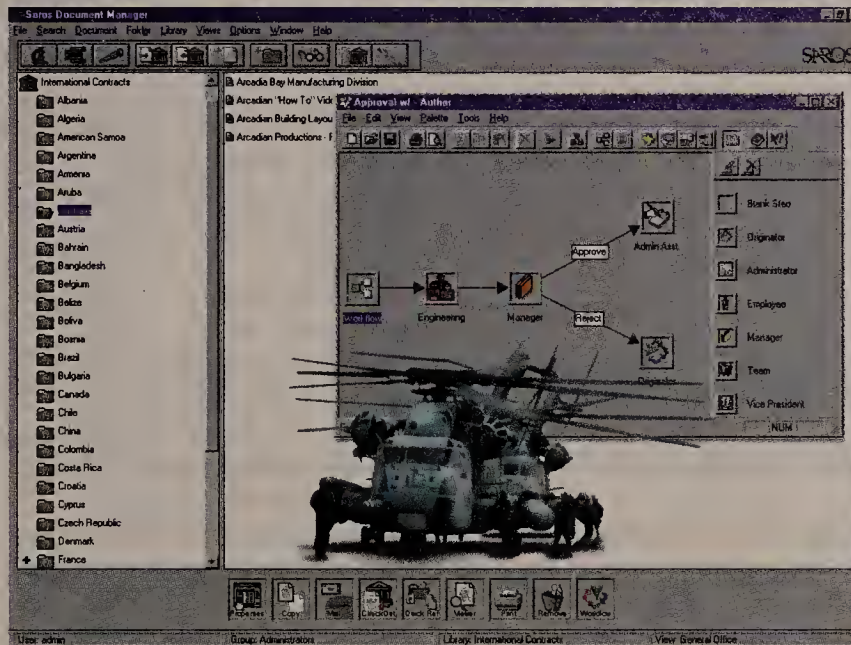
"We had documents all over the place; they were on floppies, in drawers, on C drives, in cabinets, everywhere," said Massimino, a senior systems analyst. "Management would ask for something, and we couldn't give it to them because we just didn't know where it was."

The department also had a difficult time keeping track of who had what version of any particular contract, distributing revisions in a timely manner and ensuring that old stuff did not come back to haunt them.

"We would take a document that could be anywhere from 2,000 to 5,000 pages long, make 350 copies and send it out to all these people," Massimino said. "The minute it arrived on their desks it was obsolete, it was missing something or another version had come out, and you had to go through all that effort again. There was a lot of hidden cost in there."

Sikorsky reached the end of its rope in 1994 and began fashioning what is today a six-site, 120-user deployment of *Discovery Suite*. The company was looking for software that would preserve its investment in 486 PCs, provide document version and deletion control, and because Sikorsky was not interested in coding, operate out of the box.

Massimino said Sikorsky considered offerings from companies such as PC DOCS, Inc.,



Version control and search capabilities are two features that drew Sikorsky Aircraft Corp. to Saros' Document Manager.

Wang Laboratories, Inc., and Interleaf, Inc. before settling on Saros Corp, a division of FileNet based in Bellevue, Wash.

Once the project was underway, Sikorsky quickly discovered that its challenge encompassed more than the storage and

retrieval of electronic documents. Imaging and workflow had to be incorporated for the organization to realize the data management and cycle-time improvements the company deemed necessary to compete for shrinking post-Cold War

defense dollars.

"We really changed our whole outlook on what a document is," Massimino said. "It's not just a piece of paper."

The project began with a pilot implementation of Saros' Mezzanine document management software. Mezzanine complements document imaging software from FileNet's Watermark Division, which allows users to scan paper documents into the Saros Document Manager. The suite's third piece is a workflow product called Ensemble.

Today, Sikorsky has Mezzanine operating on four Pentium 90s running Windows NT, uses a Hewlett-Packard Co. jukebox for image storage and has 120 clients running a mix of Windows 95 and Microsoft Office. While the company uses Banyan Systems, Inc. BeyondMail as a messaging backbone, the Contracts and Counsel Department has deployed Microsoft Corp.'s Exchange Server for workflow.

See Sikorsky, page 41

Informix plans to ride surging Windows NT demand

By John Cox
Menlo Park, Calif.

Sandbagged by heavy losses in its last two quarters, Informix Software, Inc. is swinging for the fence with an aggressive new plan to drive its database products into the fast-growing Windows NT market.

The key message trumpeted at the company's recent user conference is that Informix databases can deliver performance and capacity currently unmatched by Microsoft Corp.'s SQL Server, which is the leading NT database.

Game plan

"We're laying out a plan for the enterprise NT market," said Brett Bachman, vice president and general manager of enterprise solutions at Informix, based here. This market is characterized by different applications — such as transaction processing and data warehousing — that support lots of

traffic, users and data.

Bachman said the NT market is growing nearly three times faster than the Unix market. It is projected to reach nearly \$4 billion by the year 2000, according to International Data Corp., of Framingham, Mass.

To address large data warehouses, Informix is making its scalable database architecture available on clusters of NT servers. According to Bachman, customers now can add more processors to a single server or more servers to a cluster without changing the Informix database.

Informix also announced partnerships with packaged software vendors so Informix database products can be integrated with NT-based applications from SAP America, Inc., PeopleSoft, Inc. and other companies.

Business software vendor Lawson Software, Inc., for instance, recently announced that Informix is the recommended database for Lawson retail

and health care customers.

High-end hopes

"Both Informix and Oracle [Corp.] are trying to define a high-end NT space and leave the low-end market to Microsoft," said Mitch Kramer, a contributing editor with Boston-based Patricia Seybold Group, Inc.

Kramer said Informix is trying to make a case for special offerings and expertise to meet high-end needs and charge high-end prices. "That will work for now, because even Microsoft admits that its database doesn't scale beyond a few gigabytes."

Informix's plans also call for renewed attention to and spending on helping value-added resellers and systems integrators build and deploy Informix-based systems on NT, as well as 42 new programs, called datablades, that let Informix applications manipulate different types of data, such as video or audio. ■

Start-up preaches value of content management

By Chris Nerney
San Francisco

As intranets become increasingly jammed full of multimedia content — everything from HTML and audio to graphics and video — there is growing pressure to manage these media assets.

In many cases, databases, search engines and push technology can help employees catalog and quickly find infor-

mation, but these tools merely address specific functions.

What companies really need is an overall strategy to maximize the value of multimedia content, according to Tim O'Brien, president of The Content Group, a start-up based here.

"In our networked economy, content has become the principal currency of commerce," he said. "As a result, there is a critical need to manage it."

Agents learn by watching

Users can train 'people surrogates' to perform 'Net tasks.

By Chris Nerney
Jerusalem

An Israeli start-up plans to release software next month that allows users to create and "train" intelligent agents simply by walking them through a Web browsing session.

AgentSoft, Ltd. officials said the product, LiveAgent Pro, enables users to create agents that can interact with HTML pages to find, retrieve and sort information on the Internet and corporate intranets as requested.

However, rather than writing code to create the agents, users perform typical browsing activities — typing, clicking and

ties performed on the Internet."

For example, a user looking for vendors of specific goods or services faces a daunting task trying to find the information manually on the Internet.

But an agent can be programmed to search at regular intervals and return only relevant information to the prospective buyer.

The agents also can distribute data, Rosenschein said. If a new employee joins a company, rather than having a worker input personnel information in several databases (payroll, vacation, phone lists and others), an agent can be programmed to automatically update all relevant electronic files.

Rosenschein said the agents are a combination of an HTML interface and JavaScript code. And though the company's target market is MIS developers and Webmasters, Rosenschein said LiveAgent Pro "is a practical tool that can be used by anybody working on the Internet or corporate intranets."

LiveAgent Pro can be used with existing Java Integrated Development Environments and includes Java classes, templates and sample code. Agents are client-based and run on Windows 95 or NT.

The product is being beta-tested now and is scheduled to be available in late September. Pricing has not been set.

© AgentSoft: 011-972-2-648-0573

While the notion of organizing corporate information hardly is new, O'Brien said the emergence of the global Web infrastructure has created a need for tools and methods to index and find large amounts of content in the form of digital media.

"This has broad implications for the future because this content will be reused in additional distribution channels such as IP-based satellite, cable and digital television," he said. "That makes it all the more important to manage this content."

The Content Group, which provides consulting, production and network integration, recently announced a set of services and partnerships designed to help organizations better utilize — and increase the value of — their information and media assets.

O'Brien said the company's Leveraged Content Model enables organizations to identify

each step in the content-production process in which information can be compiled for effective indexing, searching and retrieval.

Key to leveraging content, he said, is understanding that "content has a life cycle." What The Content Group does for cli-

ents, O'Brien said, is help them "capture" content data from the planning phase through production and distribution.

For example, a company planning a marketing campaign will kick around ideas and concepts, zero in on a strategy, assemble text, graphics and other media forms, edit

and finalize the material and then distribute the finished product.

Most of the information gathered during this process will not show up in the final product.

But O'Brien said all such information has value. Failure to organize and provide

"The Content Group closes the gap between people who create content and people who leverage it," said Chris Okon of Informix Corp.

Sikorsky

Continued from page 39

The department has spent about \$200,000 on software and \$200,000 on hardware since the project started four years ago.

While pleased overall, Massimino said Discovery Suite needs a robust Internet client with encryption capabilities to give traveling workers secure access to the document system. And the product's administration tool is more difficult to use than it should be, she added.

Although the system met with early resistance — employees were reluctant to change the way they did things — Massimino said conversions came quickly once people discovered they could save time and aggravation by using the system.

A longer term benefit of the system is it positions the aircraft maker to do business with the Department of Defense over the Internet.

"We're also doing [Discovery Suite] to change with our customer," said Mark Goumas, director of contracts management at Sikorsky. "The U.S. government is moving more and more toward electronic com-

merce and electronic data interchange. We would like to be there alongside them, or even in front of them."

Electronic transmission of government contracts would save Sikorsky the time and expense of scanning tens of thousands of documents and images



access to it is tantamount to throwing away assets.

"So much of what is created — even for a brochure — could be used on a Web site or a presentation or a video," he said. "A lot of these assets can be recombined in different contexts."

"The reality is that many marketing departments are constantly reinventing the wheel," said Chris Okon, marketing manager for digital media products at Informix Corp., a Content Group client and partner. "The Content Group offers companies a chance to be organized from the get-go. It's being able to understand what you're putting in so you can make better use of it later."

Other clients include Nike Corp., Hewlett-Packard Co. and International Management Group.

© The Content Group: (415) 437-0100

into its management system.

Today, simply sparing employees the tedium of paper-based searches may prove to be one of Discovery's greatest benefits, according to Massimino.

"If nothing else," she said, "it will save people from going crazy." ■

Sun will acquire NC developer to speed Java product delivery

By Rebecca Sykes

Sun Microsystems, Inc. last week said it will purchase information appliance maker Diba, Inc.

Diba is a Menlo Park, Calif.-based start-up launched by former Oracle Corp. employees. It was one of the first firms that stated its intention to capitalize on the network computer concept floated by Oracle Corp. CEO Larry Ellison in late 1995. Its products include technology for formatting content for Internet appliances such as Internet televisions and "smart" phones.

Pending the completion of the acquisition, Diba will become a Sun business unit within

Sun's microelectronics division. The unit, called the Consumer Technologies Group, will work with consumer electronics companies to accelerate the delivery of Java-enabled Information Appliances into homes worldwide.

Sun said it will detail its plans at the Java Internet Business Expo in New York in late August.

Founded in 1995, privately held Diba employs 79 people. Financial terms for its sale were not disclosed.

For more information, contact Diba at (415) 482-3300 and Sun at (415) 960-1300.

Sykes is a correspondent with IDG News Service's bureau in Boston.

PROFILE: AGENTSOFT, LTD.

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Based: Jerusalem, with U.S. office in Colorado Springs.

Products: Intelligent-agent development tools, services and applications for the Internet and corporate intranets

Fun fact: AgentSoft's parent company, Accent Software International, Ltd., sells software that allows users to create Web pages in more than 30 languages.

choosing items — that are recorded and then emulated by the agents on a regular schedule or on command.

"This technology allows agents to act as surrogates for people," said AgentSoft co-founder and President Jeffrey Rosenschein.

"It automates a lot of activi-

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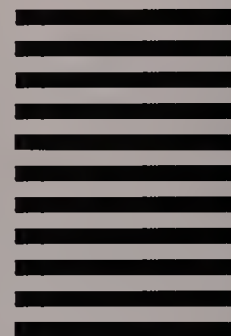
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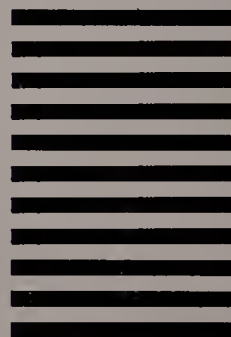


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'NET INSIDER

Oh modem, where is thy sting?

It seems like it was only yesterday that the regional telephone companies were lamenting the impact of the Internet. All of those modems the Internet service providers had installed were overloading the telephone infrastructure. Lots of money was going to be needed to deal with this crisis, and the way to get the money was to tack an extra charge on ISP modem lines.

Bell Atlantic and NYNEX both reported significant increases in revenue for the last quarter, at least in part because of strong growth in the number of secondary residential lines. These are lines people get for their teenage kids or because

they want to access the Internet without tying up the phone line.

During the quarter, Bell Atlantic added over 225,000 second lines, a 7.6% increase from the same quarter the year before. NYNEX did not report the number of secondary lines, but its total line growth was 3.5%, a growth rate I expect is far in excess of the rate at which families are acquiring teenagers. Surely some of this revenue growth could be used to pay for some of the infrastructure upgrades.

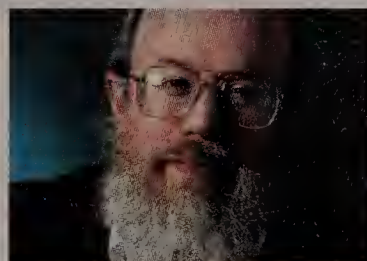
This has never been as simple a picture as the two sides in the discussion have asserted. The phone industry has been complaining about the duration of

calls relative to traditional voice calls, excluding those made by teenagers. The carriers' statistical models did not take into account lots of people on the phone for many hours at a time.

They dismiss the revenue from the secondary lines as too small to cover the added costs and want some sort of call duration-based access fee. Multiple cents per minute has been mentioned — and that's a bit scary. Even 1 cent per minute is over \$100 per month for someone who is connected for six

hours per day. The opponents have been saying the revenue generated by the secondary lines should do just fine, sort of like I did above.

There is a real problem here, but it is not ISP- or call duration-specific. Phone revenue comes from two sources, monthly line charges and usage charges. In



Scott Bradner

the past, it was reasonable to assume that most phones would generate both types of revenue. (Note that flat-rate calling plans just charge for a rate of usage that past statistics say

is "normal.")

In the last few years, there has been an explosion in the number of lines that only receive calls. Frequently, lines that sup-

port fax machines, corporate dial-ins and ISP modems are never used to place outgoing calls so that part of the assumed revenue stream is never collected.

There is a real problem here, but just focusing on ISPs misses the root issues. There is more difference between a phone that is used to only receive calls and a phone that also places calls than there is between someone who calls an ISP for four hours each evening and someone who talks to their sweetie for four hours each evening. Somehow the prices should reflect this.

Disclaimer: Harvard hardly ever talks to its sweetie on the phone so the above must be my logic.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached via e-mail at sob@harvard.edu.

Kraft Interactive Kitchen sheds light on shifting Web demographics

While men still dominate the Internet scene, Kraft's site brings in skads of women.

By Ellen Messmer
White Plains, N.Y.

The majority of people surfing the World Wide Web may still be men, but food giant Kraft General Foods, Inc. is discovering that if you create the right wave women are out there ready to catch it.

Kraft's Interactive Kitchen site (www.kraftfoods.com), which lets visitors search a database of 1,000 recipes, has only been up for 10 months, but the early response has been surprisingly strong, according to Kathy Olvany Riordan, Kraft's director of media planning/new technologies.

"Last month alone we collected over 25,000 names," said Riordan, who estimated that about 77% of Kraft Interactive Kitchen users are women. "Over 1.6 million recipes were accessed, with 875,000 Web page views by visitors with an average of seven to 10 page views per visit."

Kraft maintains a database of 14 million consumer names that the company does not sell for outside marketing purposes, and it is continuing that policy

on the Web. The Kraft site also does not accept advertising.

The Internet is relatively high-tech for Kraft's cooking audience, Riordan said. "Many people who buy Kraft products aren't tech-savvy," Riordan said. She pointed out that Kraft has learned by polling focus groups that its consumers neither have

because about 10% of the traffic is coming from Canada," Riordan said.

Whenever Kraft advertises its Web site on television, it quadruples traffic to the Interactive Kitchen. "But this spike is not sustained, and we want repeat customer traffic," Riordan said.

Kraft is primarily interested in fostering an online community of like-minded individuals rather than simply drawing large crowds.

Riordan said that one key to success will be forming mutually beneficial partnerships with other Web sites to attract consumers. "We need to develop strategic alliances, not just gather sites together," Riordan said. Kraft is already working with Hearst Home Arts on some electronic commerce trials that will go online by year-end.

However, in spite of the early success of the Interactive Kitchen, Kraft is far from certain that the Web is a media to reach its consumer base in the long run. "We still have to analyze it in terms of return on investment, as with any other form of media," Riordan said. ■



Kraft's Interactive Kitchen is bringing household cooks — mostly women — onto the World Wide Web in surprising numbers.

the latest network gear nor generally know about it.

About 85% of Kraft's Web traffic originates in the U.S. But the growing number of Canadian visitors to kraftfoods.com has caused Kraft to alter its Web content. "We don't have the same brands worldwide, but we will add Canadian content

Microsoft invests in 'Net phone maker

By Torsten Busse
San Francisco

Microsoft Corp. has made an equity investment in privately held Navitel Communications, Inc. to help guarantee the Internet telephone maker's success, a Microsoft official said.

As part of the agreement announced last week, Navitel will discontinue plans to manufacture hardware and concentrate on the development of telephony applications software for Microsoft's Windows CE operating system, said Ashley Center, a marketing associate at Navitel.

Navitel had been planning to market a product called a TouchPhone Internet telephone, which was to be built using a Philips Semiconductor Poseidon Reduced Instruction Set Computing chipset and Windows CE. TouchPhone would have allowed users to place calls and navigate the Internet using a touch screen.

TouchPhone promised features such as an inbox for e-mail and voice mail, an address book, calendar, alarm and Microsoft's Pocket Explorer Web browser. It also was to support a subset of the Win32 API set, including a TCP/IP stack, PPP protocol and

an internal modem.

Navitel is currently negotiating to sell TouchPhone to a third party, Center said, although she declined to name the interested parties.

The agreement ensures a much tighter integration between Navitel's software and the Windows CE platform, said a Microsoft spokesperson, who declined to elaborate.

"We consider Navitel a key Windows CE software developer and we expect great things of them," said a Microsoft spokesman.

"We consider Navitel a key Windows CE software developer, and we expect great things of them," said a Microsoft spokesman. The company has no plans to acquire Navitel and is not disclosing details of its equity investment.

Greg Stanger, Microsoft director of business development and investments, will join the Navitel board of directors.

Founded in 1996, Navitel has about 50 employees and has received venture capital backing from Draper Fisher Associates of Redwood City, Calif., and Wasatch Venture Capital Corp. of Salt Lake City, Center said.

For more information, call Navitel at (415) 462-9171.

Busse is a correspondent with IDG News Service's bureau in San Francisco.

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Technology Update

Covering: Evolving Technologies and Standards

NUTTER'S NETWORK HELP DESK

Ron Nutter, a Master Certified Novell Engineer and Groupware CNE in the Lexington, Ky., area, tracks down the answers to your questions. Call (800) 622-1108, Ext. 476, or send your questions to rnutter@world.std.com.

I'm trying to build a NetWare 4.1 server using a PC with one 325M- and one 800M-byte Integrated Drive Electronics (IDE) drive. I can install the server software with no problem, but I can't seem to get NetWare to see the 800M-byte drive. Volume SYS: is mounted on the 325M-byte drive, but I want to make the 800M-byte drive VOL1.

Via the Internet

First, look at the PC's CMOS configuration. Some computers have IDE controllers that can operate in enhanced and standard modes. If the controller is in enhanced mode, change it to standard mode and retry creating the volume.

You also should check the jumper settings on the back of the drive. Most IDE drives have three settings: Master, Slave and Cable Select. Make sure you don't have the Cable Select option enabled on just the second drive, and verify that the second drive is properly set up in CMOS. Some BIOS chips have an option of testing the drive to see that it is responding.

The next two options are possibilities only if trying another IDE controller or cable is not an option or doesn't fix the problem.

Some IDE drives don't support a command called Current Parameters (CP). This is a query process initiated by the hard disk drive to "learn" the parameters for which the drive is set directly from the drive itself. By loading the IDE.DSK drive with a /C option, you can tell the driver not to use the CP command.

Novell, Inc. doesn't recommend doing this, but you can use it to see if the drive is responding. When loading the driver with this command-line option, you will receive an error message about not supporting CP. You still will be able to get up and running.

As a last resort, you can try using the ISADISK.DSK driver to see if it will find the drive. You would use this instead of IDE.DSK.

IP telephony reaches out to touch the masses

New applications promise significant corporate voice and fax savings; should provide enhanced customer support.

By Michael Katz

Standard computing technology has been merging with telephony into what is often referred to as computer-telephone integration (CTI). It's a rare business today that doesn't use one or more services based on CTI.

Call centers, reservation networks, credit card authorizations, customer support lines and other core business operations have come to depend on CTI to such a degree that outages of even a minute can result in a significant loss of revenue.

The newest emerging technology in the field is the integration of CTI with the Internet or with private or leased intranets that use IP, creating IP telephony.

There are several reasons why interest in IP telephony is growing but the main one is savings: Most companies can push anywhere from five to 10 times the number of voice calls over the same line compared to circuit-switched voice.

IP telephony is any telephony application that can be enabled across an IP data network. The applications can include PC-to-PC, PC-to-phone and phone-to-phone connections. IP telephony applications also include voice over the Internet or intranets, fax traffic (real time and store and forward), Web-enabled interactive voice response and unified messaging via the World Wide Web.

Another way to look at IP telephony is as the convergence of circuit-switched data, such as the public switched telephone net-

work (PSTN) and leased lines, with packet-switched networks such as the Internet/intranet, LANs, X.25 and other data communications technologies.

The details

IP telephony technology has two components: the media, or the types of information being carried (voice, fax or video), and the switching technologies (circuit or packet). The connection type, or how the underlying PSTN is utilized, also is a factor in how the media are applied.

Where circuit switching is in use, the opportunity exists to convert signals into packets of data that travel the telephone network more efficiently than the original signal and then convert the packets back at the other end. This enables a single line to be used for multiple data types, resulting in much greater line utilization.

IP telephony offers the same or greater degree of improvement when applied to fax transmissions. Like voice bypass, fax bypass converts fax signals into packetized data. As a result, fax bypass can dramatically cut the cost of sending long-distance faxes, especially overseas, without the need for end users to purchase additional equipment.

IP telephony offers significant new revenue potential for call centers, help desks, technical/customer support and other information-/operator-intensive activities, while improving efficiency and quality of service to callers. If the customer has a multimedia-enabled PC that connects to the Internet, and the call center has an IP telephony server at its end connecting to both the automatic call distributor/PBX and the LAN, the customer can initiate a telephone call to an agent from the Web without disconnecting his computer session.

For example, the user can click on a "Talk to Sales Agent" button on the Web page, which initiates a call to the sales agent queue. When a sales agent takes the call, he immediately sees the

same Web page as the user.

The early implementers in the market have focused their efforts on voice and fax applications.

As standards emerge for interoperability of IP telephony products and as bandwidth becomes more "commodity"-oriented, additional media types such as video will be included. The next stage in IP telephony market development will address server

telephony gateway.

Success in the IP telephony gateway business requires a scalable package. In order to take advantage of IP telephony's potential, such as those described above, requires the introduction of additional digital signal processing hardware/software and dedicated high-speed interfaces to the network to provide a quality of service comparable to the traditional phone network.

THE CASE FOR IP TELEPHONY

Pros:

- ▲ IP telephony improves the use of bandwidth for real-time voice transmission by a factor of 10.
- ▲ IP telephony promises to save companies upwards of 40% on fax transmission costs.
- ▲ Customers can initiate a telephone call to a sales agent from the World Wide Web without disconnecting their computer sessions.

Cons:

- ▼ Voice may not be toll-quality.
- ▼ IP can drop packets causing transmission problems.
- ▼ Internet service providers will need to build out equipment capable of handling thousands of concurrent sessions.
- ▼ Lack of multivendor interoperability standards.

or gateway applications.

Today, most of the IP telephony products consist of PC-to-PC communications packages, primarily Internet telephone products.

The products have their problems and limits, including lack of standards for interoperating between different vendor offerings and the inherent performance limitations of running IP telephony from an end user's desktop. The host-based processing model does not lend itself to the higher end voice-processing functions, such as echo cancellation and latency, and jitter management required for true toll-quality voice communication.

IP telephony achieves the best performance when dedicated resources are available, requiring the presence of multimedia capabilities in an end user's PC. IP telephony capabilities are being added to, or preinstalled in, a growing percentage of desktop and notebook systems. Communication between a desktop PC and a PSTN phone via the Internet/intranet requires an Internet-to-PSTN gateway or IP

Although there are high-value, high-density IP telephony gateways available today from significant telecommunications equipment providers such as Inter-Tel and Lucent, the IP telephony market is undeniably still in its infancy. However, unlike past developments in telecommunications, this technology is growing in Internet years and appears to be on the fast track.

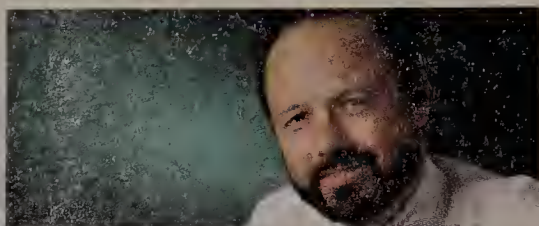
Katz is director of IP telephony products at Natural MicroSystems Corp., a Massachusetts-based company that provides hardware and software technologies for developers of high-value telecommunications solutions.

Need information?

Let *Network World* provide a quick primer on an important or emerging technology. If you have an idea for Technology Update, contact Michael Cooney by phone at (508) 875-6400 or e-mail at michael_cooney@nww.com.

Get more on Fusion:
● Background information on Natural MicroSystems
● White papers on Integrating voice and fax on IP nets
● A link to a variety of IP telephony information such as IP gateway performance evaluations and consultants' tips.

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Are you ready for these network management challenges?

Trying to boil down the wisdom of the experts who spoke at our Managing Enterprise Networks & Systems conference last week is a risky undertaking. But as Russian writer Boris Pasternak said, "Art is unthinkable without risk." So here goes:

● **Service level agreements are coming.** If you aren't already being pressured to enter into a service level agreement (SLA), you will be soon. Under such agreements, business units "pay" for network service based on your ability to meet performance or quality expectations. Business executives, who've always viewed IS as a black hole into which money is poured, will love these agreements as a way of getting control of you and your budget.

● **You can't improve what you can't measure.** The sad truth is that many administrators don't know how their networks and applications really are performing from an end user's viewpoint. As renowned quality expert Dr. W. Edwards Deming preached, you can't improve quality without effective tools for measuring what you're already doing. Baseline your operations will be important for getting investments in new tools and living up to SLAs.

● **Know thine users.** It's hard enough to understand the diverse needs of users in your own company. But how will expectations change when you roll out electronic commerce applications that touch people globally? Are you prepared to deal with the quality-of-service issues

involved in selling over the 'Net — say, guaranteeing the confirmation of an order in less than 5 seconds?

● **Managing expectations is as important as managing the network.** You have to talk with department heads and other executives to help them understand what they can reasonably expect in the way of performance, as well as what they'll have to pay if they want to improve things.

● **Directories will rule.** Directories will serve as the nexus for management information on systems, networks, applications and users, making it easier to track changes and implement policies. Now's the time to learn more about products such as Novell Directory Services and Microsoft's Active Directory.

● **The World Wide Web offers real hope.** Java will spur the development of new management applications that can draw more life out of your management platforms. Browsers also will make it easier to use management tools and open up their information to new users.

● **Tools must get easier to use and deploy.** Lest you think all the pressure is on you, the most important message from the conference was this: Network and systems management vendors have to make their products easier to use by a wider range of people. Expertise is scarce and the demands on the network are growing exponentially. Making the tools smarter is job number 1.

John Gallant, editor in chief

jgallant@nww.com

On Security • Winn Schwartz

A new way to pick up the pace of e-commerce

Okay, so you've bought into all of the hoopla about electronic commerce. You've even learned to accept its dual realities.

Reality No. 1: The Internet is a fabulous place to do business. With a little imagination and cash, you can make a fortune selling blue widgets and sucking down credit card numbers across cyberspace.

Reality No. 2: The Internet is a dangerous place to do business. Between hackers, phreakers and plain ol' credit card-snatching criminals, the words "information security" have been branded onto your forehead.

Both realities, you are convinced, can peacefully coexist in the brave new world of electronic commerce. But to really make some money, you must have thousands of customers click-clicking into your secure transaction server.

Sounds simple, but there's a hitch. Each secure remote electronic financial transaction can take 100 to 300 msec (1 to 3 tenths of a second) to process — an eternity from a computer's standpoint. In a Secure Electronic Transaction or Secure Sockets Layer model, public-key authentication must validate the process, which is computationally intensive especially with highly secure 1,024-bit keys.

Another problem is peak load. At 3 a.m., city streets are nearly empty, but at rush hour, traffic is a nightmare.

From an electronic-commerce standpoint, vendors face the same dilemma: how to manage large numbers of people all attempting to make electronic purchases in an electronic rush hour.

Electronic rush hours create payment bottlenecks. If three potential customers call at the same time, they won't notice the wait. If 300 call, 270 of them are going to wait between 10 and 100 seconds to get their credit cards authorized. Not an ideal situation.

To the rescue come cryptographic accelerators. These products plug into a PC bus and speed up the process of electronic-transaction authentication to acceptable levels. Using dedicated hardware and specialized software designs, accelerators optimize the intensive modulo math computations to solve the cryptographic equations in every transaction.

Only three companies offer cryptographic accelerators. The fun-

damental difference among them is performance, or how many transactions per second can be processed. CryptoSwift by Rainbow Technologies is said to perform 25 1,024-bit public-key calculations per second, which is certainly an improvement over the existing rate of three to five authentications per second. (For more information, see <http://isg.mbo.com/products/specs.htm>.)

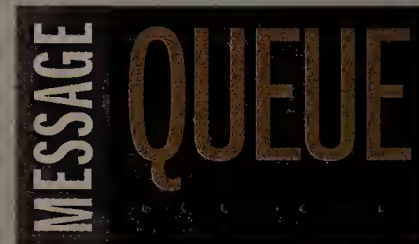
IBM's entry, the 4758 PCI Cryptographic Coprocessor, will calculate a 1,024-bit private key with blinding — a technique for hindering software attacks against commerce servers — every 88 msec, providing 12 transactions per second. (Check out www.ibm.com/security/crypto-cards/html/4758_techspec.html.)

The most impressive performance claims come from NCipher, whose nFast cryptographic accelerators operate at speeds ranging from 75 to 300 transactions per second. (See www.ncipher.com.)

If your site experiences transaction bottlenecks or you plan to open a high-volume commercial site, you need a cryptographic accelerator to keep your customers happy. Financial institutions planning to offer electronic-transaction services such as remote banking, insurance or brokerage are especially good candidates for cryptographic accelerators.

For high-end applications, I give nCipher the edge. The Rainbow Technologies and IBM products are fine for handling lower speed applications. Prices start at about \$2,000 per accelerator.

Schwartz is chief operating officer of Security Experts, Inc., an information security consulting firm in Seminole, Fla., and president of Infowar.Com. He can be reached at winn@securityexperts.com or winn@infowar.com.



Send letters to nwnews@nww.com or John Gallant, editor in chief, Network World, 163 Worcester Road, Framingham, MA 01701. Please include phone number and address for verification.

Target practice

David Rohde's column, "AT&T strikes out in Chicago" (July 7, page 32) missed the mark in some key areas.

AT&T stated publicly that we would build our own high-capacity, fiber-optic facilities in the Chicago area and have them operational by the end of 1997. We are still on target to do just that. All three switching systems have been delivered and installed and are in various stages of testing.

Regarding the amount of fiber, there will be 350 miles of it — 175 miles of which have already been installed.

Our fixed wireless beta test, announced in February, is right on target.



Network computers: More hype than hope

The other day, I bought what I thought was a new paperback only to find it was one I'd read years before. What threw me off was that the publisher changed the cover. We're facing the same kind of sleazy marketing tactic with network computers (NC). Vendors have simply put a new name on a concept most users rejected nearly a decade ago.

Users have been confused about NCs from the start. Most can't easily differentiate between NCs in the original sense — Java-based devices that don't run standard PC software — and the so-called NetPC, which is a network-dependent, Windows-based machine. Both devices make pretty much the same claims of easier administration.

These claims were made years ago by the providers of diskless workstations. Remember those? They were supposed to have the same impact on administration cost. How many of you have Amdek or CompuAdd diskless workstations on your desks now? NetPCs are just retreads of the old diskless workstation concept.

How long is it going to take vendors to realize that the purpose of PCs is to run applications effectively, not to be easily administered? It's not that easy administration is bad, but we can't let it completely undermine the PC's basic function.

We want speed on the desktop. That's why people salivate every time Intel jacks up the clock speed of a Pentium model. We want instant gratification when we click on an icon; our application should load immediately. We want fancy graphical interfaces, fast spreadsheet recalculation, good presentation graphics, a wealth of shrink-wrapped software and more. We are not going to get these things from NCs or NetPCs, and the proof of the pudding is in the failure of diskless workstations to catch on.

The assertion that buyers already have fast networks to support these new devices flies in the face of reality. Dozens of users call me every month asking for guidance in making their shared-media LANs work a little better. How well do you suppose those LANs would work if all the desktop systems they supported had to drag their files and programs over the LAN instead of loading most from local disk drives?

There's no doubt that if everybody had Gigabit Ethernet to the desktop and servers with terabit Ethernet connections, we could probably load software and data from central servers. We don't have either, and the average worker today will probably never live to see the time we will. Even today, most workers still have shared-media connections. Administrative costs would have to be awfully high to cover the tab for switching all these users to dedicated ports, even at 10M bit/sec.

Then there's Java. Remember the University of California at San Diego's p-system version of Pascal? It was an interpretive language (called p-code), just as Java is, and had the same portability objective. Why aren't we running p-code programs today? Because the performance was rotten!

Java is great for making display-intensive applications more flexible on intranets. But it's not something we'll use to develop word processors or spreadsheets or graphics programs. It's too slow for prime-time computing. In application development performance terms, Java is relabeled p-code.

What will NCs really do? Replace dumb terminals. With NCs, we can make a dumb terminal application more user-friendly and thereby increase worker productivity.

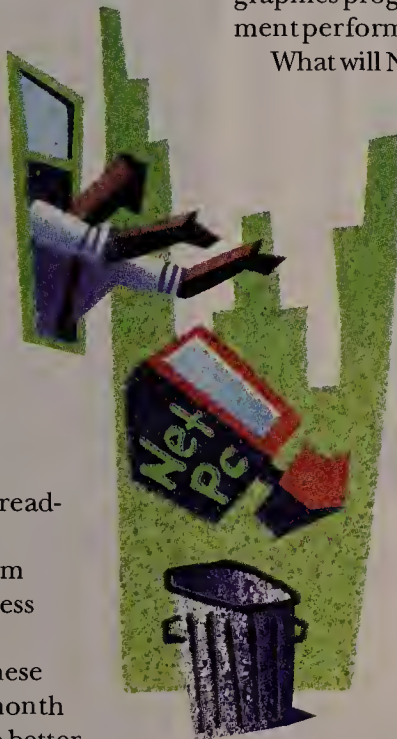
Where does this leave the NetPC? Where we left the diskless workstation — in the trash. I propose a test of this view. Hard drives cost about \$100 for a half gigabyte. How long will it take for an eager NetPC vendor to figure out that by adding \$100 to the price, the NetPC can operate in network-independent mode? We've already seen work start on mobile network computers, so why not equip a NetPC with a hard drive so it can be used off the network? What would you call a mobile NetPC? Basically, it would be a stand-alone PC or laptop.

If PC software administration is a problem, let's solve it with systems management tools. Vendors are already doing that. Do we really think it would be any easier to create central software repositories to administrate if we replaced all our PCs with NetPCs or NCs? The administration software would be much the same, but the cost of replacement would be staggering, and the impact on user performance would be even worse.

The worst problem is that this debate is obscuring the real value of the NC: as a dumb terminal replacement. Oracle, author of the "nets are fast enough" paradigm, has a good "NC equals better dumb terminal" strategy embodied in it Oracle8 and NC announcement. So why pick on a market area where there isn't a problem that needs solving?

There are a lot more happy PC users out there than happy 3270 users. Let's get our priorities straight and focus on the important mission of getting a new host-interactive information display paradigm. Leave the PC buyers alone.

Nolle is president of CIMI Corp., a technology assessment firm in Voorhees, N.J. He can be reached at (609) 753-0004 or via the Internet at tnolle@cimicorp.com.



MARTY BRALIN

too. As I indicated to Rohde, we plan to start with a small group of employees, expand to a larger group of employees and some customers and then go public sometime next year. Those plans have not changed.

What also has not changed is our desire to serve all the communications needs of both residential and business customers. As for local service, we will provide it through a variety of means — as a reseller, through alternative access providers or through our own facilities and services such as AT&T Digital Link.

Finally, I invite Rohde to visit our fiber-optic switching sites in Chicago and see for himself the breadth and scope of our commitment to be customers' anytime, anywhere, any-distance communications company.

William Ketchum
President, Central States
AT&T
Chicago

Rohde responds: I'm delighted that AT&T has finally revealed the amount of local fiber it has installed. That's standard operating procedure for a competitive local exchange carrier.

In our interview, Ketchum said he didn't know whether two of the three switches had been installed. In any case, according to other AT&T officials, the switches are not yet passing traffic.

Regarding the fixed wireless trial, in February former AT&T President John Walter said the trial would begin this fall.

Ketchum told me it probably will

Go online to read letters about Mark Gibbs' column on the value of domain names and other subjects.

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begin next January.

The larger point, however, is that the trial is so tiny most analysts discount the prospect of commercial deployment any time soon.

Emory recommends

Your article "Rough start for IMAP4" (July 14, page 1) gives a false impression of the observations and recommendations of the Emory University project that recently reviewed Internet Message Access Protocol 4 (IMAP4) clients and servers.

For the past year, Emory's recommended and centrally distributed software package has included IMAP clients instead of Post Office Protocol ones.

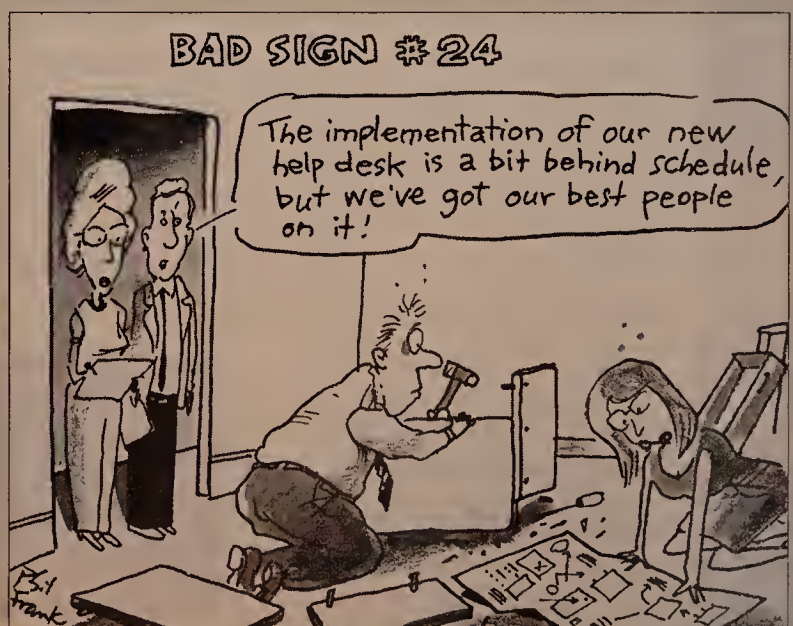
The IMAP4 project's recommendations include: continue to provide an e-mail service that natively uses Internet standards; use IMAP4 for e-mail access; initially use Sun's Solstice Internet Mail Server as the IMAP4 server; and use Netscape Com-

municator as the recommended and distributed IMAP4 client later in the 1997-1998 school year.

See www.emory.edu/ITD/RP/EMAIL97/ for more information about the Emory IMAP4 project.

*Peter Day
Team leader
Emory University IMAP4 project
Atlanta*

Teletoons

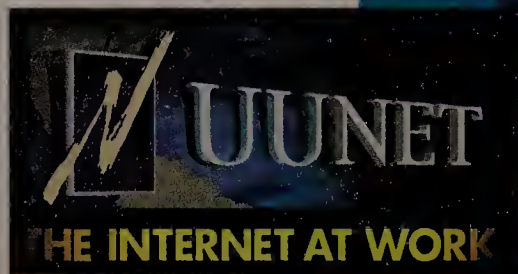


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Fiber is good for you

Running optical fiber to the desktop can boost performance and help network managers avoid rewiring tangles in the future.

By Dave Buerger

Pulling network wiring is a lot like raising political campaign money: a dull but necessary evil that always costs more than its promise.

For some overzealous politicians, the cost of that necessary evil could be embarrassment and censure. Network managers may suffer the same fate as new, bandwidth-intensive applications start clogging antiquated, copper-based LANs.

Copper wiring is on its last gasp; inadequate to future-proof the service of next-generation fast network technology. The alternative is fiber to the desktop — the only option that will finally turn LAN wiring from a periodic headache into a permanent utility. That's the ideal. Unfortunately, the ideal is far from reality.

How many times have you paid to rewire the corporate network? Have you done a financial life-cycle analysis of wiring options, or is cable just an afterthought? Do cable trays burst with outdated, unused wire? Are you nervous walking under bowed ceilings that barely support the weight of cable discards? Does the word "category" trigger thoughts of Jeopardy or technical classifications describing genres of twisted-pair wire? It's no wonder cable installers have more job security than chief information officers.

If you want to look out for the bottom line, consider installing fiber to the desktop the next time you rewire. Fiber may cost a bit more than twisted-pair copper or coaxial cable, but it provides some distinct performance advantages that make it a good choice in the long run (see graphic, page 52).

Virtually all of the long-distance telephone backbone and about half of the local telephone and cable TV backbones use single-mode optical fiber, which provides high-bandwidth, low-loss performance. Fiber is also commonly deployed in network back-

bones — especially between floors and buildings. But most organizations refuse to wire desktops with fiber and say it's just too expensive. Or is it?

"It was the business implications that led us to fiber-to-the-desk in 1988," says Dr. Raymond K. Neff, vice president for information services at Case Western Reserve University in Cleveland.

Neff previously wired four other campuses with copper and was searching for a better way to accommodate network traffic. "I knew if we continued

using copper, we'd have to rewire at least every 10 years," he says. "I wanted to get us out of the wiring mode and into the application mode."

Performance of new high-speed networks on copper wiring will be only as fast as the laws of physics permit. At Case Western, Neff decided to tap the virtually unlimited bandwidth of fiber to leapfrog the data transmission speed and distance limits of copper wire.

"I now wire for information the same way I wire for electricity — once," Neff says.

Case Western's 92-building, fiber-based cable plant essentially became a long-term utility for its 10,600 PCs. The optical wire plant is independent of network electronics and software. This makes the physical network adaptable to any type of present or future protocols.

Rudin Management Co. touts the benefits of fiber in its marketing campaign for leased space in its New York commercial building. "We believe that photons of light will replace electrons as the transport mechanism of choice for broadband communications," says John Gilbert, chief technology officer at the New York Information Technology Center at 55 Broad St. "We'd be idiots to not use fiber."

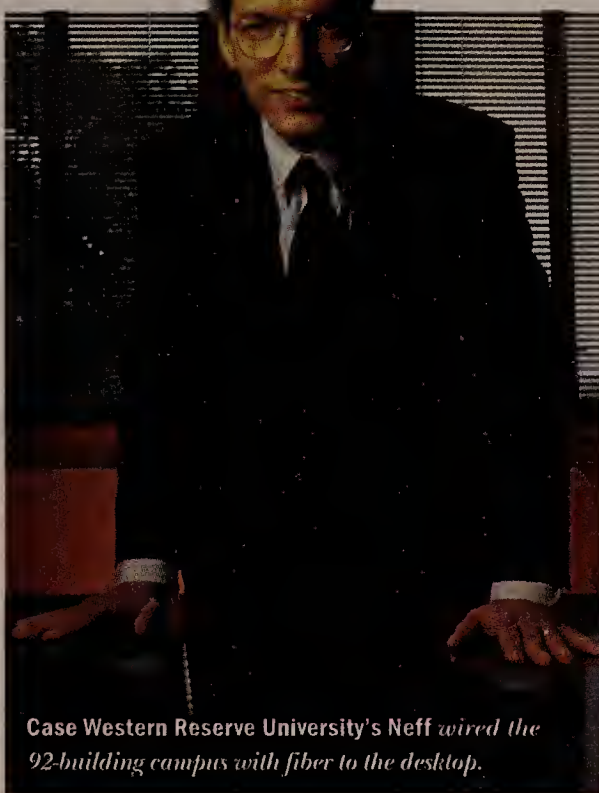
Gilbert says he wired the building with fiber to give tenants whatever bandwidth they want, and he only wanted to do it once to hold down future costs. He says fiber LAN implementation costs are dropping thanks to gradual reductions in electronic component prices.

Stoneware manufacturer The Pfaltzgraff Co. of York, Pa., bought 150 fiber-to-the-desk connections from supplier AMP, Inc. when it learned the cost would be nearly equal to Category 5. "We had problems getting copper certified for Fast Ethernet," says Clair Bange Jr., vice president of information services. "The extra quantity of electronics required for copper made pricing a wash," says Mike Maloney, manager of Pfaltzgraff's technical services. Bange adds, "It was a no-brainer."

Fiscal reality

The cost of installing fiber-to-the-desk is dropping, but usually is up to 50% more expensive than Category 5, according to Dave Stoner, manager of market development at network equipment vendor Allied Telesyn, Inc. in Sunnyvale, Calif. "That's the biggest impediment to wide use of the technology," he says.

Ironically, media is the least expensive portion of an all-fiber LAN — it usually totals less than 5% of the complete cost. Electronics are the most expensive element. Transceivers comprise about 54% of the technology cost, while connector density contributes about 33%, according to Corning Inc., the inventor and leading manufacturer of optical fiber.



Case Western Reserve University's Neff wired the 92-building campus with fiber to the desktop.

BRUCE ZANE

Go online for:

- An overview and white papers on fiber optic to the desktop and Category 5 cabling options
- A virtual reality tour of the mega-wired New York Information Technology Center building at 55 Broad St. in New York
- A previous article on documenting the cable plant

www.nwfusion.com



HOW FIBER BEATS COPPER

Nearly unlimited bandwidth. Transmission of data over copper wire becomes less stable at faster speeds, while fiber's capacity exceeds all emerging gigabit LAN technologies over 300 to 500 meters.

Transmission over longer distance. Category 5 copper wire runs out of gas 100 meters from the wiring closet. Multimode fiber easily meets the ANSI/TIA/EIA-568-A Commercial Building Telecommunications Cabling Standard of 500 meters.

More reliable and secure. Unlike copper, fiber is free from signal cross-talk and electromagnetic interference from power, radio or microwave sources and is virtually untappable.

Easier to handle, install and test. Fiber is lighter than copper cable, but stronger. You can pull a fiber cable at a force of more than 150 pounds, which is six times the recommended level for Category 5 copper wire.

Permanence. Fiber lasts forever, while new network technology requires frequent copper wire upgrades. With fiber, LAN architecture upgrades are limited to network electronics and software. The fiber cable plant stays the same.

SOURCE: TELECOMMUNICATIONS INDUSTRY ASSOCIATION'S FIBER-OPTICS LAN SECTION

Density is important because fiber connectors have been larger than the RJ-45 jacks used for Category 5. This means a traditional fiber hub or switch can link just half as many workstations with fiber than the same-size box does with copper, driving up the overall installed network cost.

New connectors, however, from 3M Corp., Lucent Technologies, Inc. and an AMP/Siecor Corp. partnership are smaller and less expensive. 3M says its technology will cut the cost and size of fiber connectors in half when it debuts early next year. Codeveloped with Honeywell, Inc., 3M's VG-45 product omits the need for adapters, alignment sleeves and precision ferrules (the primary cost driver for fiber-optic connectors).

The cost of opto-electronic transceiver technology such as that used in LAN adapters also is poised to drop dramatically. Most fiber light sources use light-emitting diodes, which work best in low-speed networks. A new technology called vertical cavity surface emitting laser (VCSEL) will help boost fiber bandwidth on LANs at a much

lower cost than current alternatives.

"This is an important technology breakthrough," says Peter Tarrant, vice president of business development at Bay Networks, Inc.

Vendors say these technical developments will drop fiber's per-port pricing closer to parity with copper within about 18 months.

But calculating first-installed costs are just one part of the overall return on investment equation. Fiber-to-the-desk allows deployment of a centralized wiring architecture. This results in dramatic ongoing operational savings of at least \$175 per user, per year, according to figures provided by AMP and Forrester Research, Inc. (see graphic, right). AMP calculates that sites will realize a payback for fiber's premium in just three years.

Longer passive data links with fiber are key to unlocking savings. Copper LANs require that active electronic hubs and switches housed in wiring closets be no farther than 100 meters from each PC. But with multimode fiber, the hubs, switches and routers can be located up to 500 meters from each PC.

This scheme allows network managers to centrally locate hubs and switches in a single spot to contain costs and ensure robust performance.

Centralizing data electronics lets administrators use smaller, nonair-conditioned wiring closets for passive cross-connections, splices or pull-through cables between the central facility and PCs. Adds, moves and changes become a snap because physical resources are located in one spot. Organizations also can cut the natural oversupply of unused active ports distributed in wiring closets.

And physically dispersed members of a workgroup that require expensive technology such as ATM can get what they need from one switch in the central facility. Fiber-to-the-desk facilitates measured introduction of these technologies on an as-needed basis.

Fiber can even help improve productivity and save money by reducing downtime caused by cable outages.

Failures in the structured cabling infrastructure cause an average loss of \$250,000 per year, per 100 users, according to a recent International Data Corp.

FIBER OFFERS LONG-TERM SAVINGS

Fiber to the desktop reduces annual LAN cabling and hardware management costs by an average of \$175 per user. Here's the breakdown:

	Copper cabling	Fiber with centralized management	Savings
Physical LAN support	\$280	\$210	\$70
Bridge/router support	\$110	\$83	\$27
Outages	\$160	\$83	\$77
Total savings			\$175

SOURCE: AMP AND FORRESTER RESEARCH

study commissioned by test and measurement equipment manufacturer LeCroy Corp. IDC measured losses based on business downtime, user productivity and effort by network managers to fix the problem.

Based on this measure, AMP's calculation of \$175 in recurring annual savings per user is highly conservative.

Ultimately, network and IS managers should do their own payback analysis and consider the overall benefits of using fiber-to-the-desk today.

"We knew the fiber would cost more,"

says Daryoush Marefat, director of design and engineering at the University of Kentucky. "On the other hand, putting a value on something that provides 100 to 1,000 times more capacity is very hard to do. We had the application and we needed to provide the path." The university is wiring more than 1,200 desktops in its new library with fiber.

Chuck Wilson, a LAN specialist and facilities designer at the University of Miami, says the school's motivation to make the move to fiber was to jump off the "copper treadmill," which required regular rewiring of various categories of copper cabling. "Paying to do the same job twice is more expensive than doing it with fiber the first time," he says.

And Case Western's Neff says his long-term goal was to minimize operating and labor costs. "We built a utility, which has a higher upfront cost," he says.

"Focusing on life-cycle costs by using fiber-to-the-desk is a triumph for strategic thinking," Neff says. "Now

we have a terrific network because it is flexible and has the lowest maintenance costs.

"Upgrading the network now is just pulling out the old electronics and software and putting in the new," he says. "Would you imagine putting plumbing that lasts just three years into a building? I don't think so. Who the heck buys a commode that lasts only three years? No one!"

Buerger is a writer and industry marketing consultant. He can be reached at dave@buerger.com.

Category 5 users face hidden speed bumps

Warning: Your Category 5, unshielded, twisted-pair LAN wiring may not live up its promise.

And there's a lot of it out there. About 73% of organizations use it to wire their LANs, according to a survey by Sage Research, Inc. of Natick, Mass. One of Category 5's attractions is its ability to handle high-speed LAN technologies such as 100M bit/sec Fast Ethernet. But some Category 5 users may be in for an unpleasant surprise when they implement Fast Ethernet.

"Category 5 had no installation specifications when it first came out," says Dave Stoner, manager of market development at Allied Telesyn, Inc. "So people went ahead and installed it like Category 3 voice-grade wiring," he says. Poor installation degrades performance. "Many of them are in for a lot of dissatisfaction when they throw the switch."

Stoner says up to 10% of cable installers that he regularly speaks to have seen this problem.

Poor quality cable is another issue. "Category 5 cable construction and electrical performance vary widely among manufacturers," says Frank Coletto, vice president of marketing for Structured Cabling Systems at Anixter, Inc., a global provider of network cable and communications systems.

"We see about 35% of the Category 5 marketplace is willing to pay a premium for a guaranteed, high-performance product," Coletto says. "About 30% to 35% will pay a bit less for solid-performing Category 5. The balance purchase generic Category 5. And those are the people who will be very surprised when they try to run high-

data rates over their copper network."

Anixter also cautions Category 5 customers to use high-quality electronic components. Everything else passing the electrical signal — hubs, switches, adapter cards, patch cords, connectors, cross-connects, patch panels and outlets — must provide Category 5 characteristics. Anything less results in slower transmission speeds.

Hiccups such as these will increase for users who insist on implementing fast LAN technologies with copper wiring. Vendors already are marketing "enhanced Category 5" copper wiring, which promises to support frequencies of up to 200 MHz — twice the capacity of regular Category 5 wiring.

And international standards bodies are considering an even faster version of copper, tentatively called Category 6. Of course, the added performance edge carries a higher price tag.

As for fiber, about 16% of users in the Sage Research survey said they now use multimode fiber to the desk. More than a fourth "agree strongly" that fiber will overtake copper as the predominant form of LAN wiring by the year 2000. More than a third "somewhat agree" with that prediction, while 16% were neutral. Two-thirds said they plan to replace some cabling within three years.

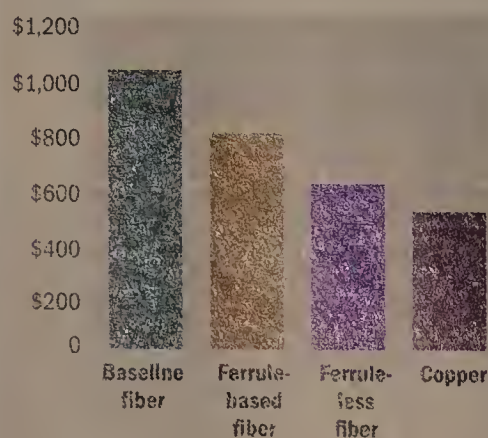
These users clearly know more about choosing permanent LAN wiring than copper-loving vendors. In 20 years, fiber to the desk will be the only part of your LAN that will not have changed in an ever-shifting world of LAN technology.

— Dave Buerger

FIBER VS. COPPER COST COMPARISON

New fiber opto-electronics and connector technology is rapidly cutting the total cost per port closer to copper.

(Cost-per-port)



SOURCE: CORNING INCORPORATED

REVIEW

WAYFARER'S INCISA PUSHES ITS WAY TO THE TOP WITH STRONG CONTENT AND USER MANAGEMENT TOOLS

Push servers deliver

by Andrew Eberle

When you need to get crucial company dispatches onto user desktops in a jiffy, push technology can get the job done faster than e-mail and at less cost than writing custom applications. We found three push products that have just about everything you need to quickly and easily implement the technology.

Wayfarer Communications, Inc.'s Incisa 1.0 is the product most suited for corporate environments. It offers the best way to centrally manage content that's distributed across multiple servers and define how that content flows throughout an organization. It also provides strong user-control and ease-of-use tools.

BackWeb Technologies, Inc.'s Channel Server 2.0 is a close second. Although it can be used on an intranet, the product is better suited for running a commercial Internet service that pushes information to people in a variety of organizations. As such, the product's rich feature set would be overkill for most corporate needs; it's too high-priced and takes too long to set up and manage.

PointCast, Inc.'s I-Server 1.2 is further behind. While the product can accomplish the task at hand, it doesn't shine as a complete intranet solution. It lacks user-control features and supports limited content types.

Wayfarer and PointCast introduced new versions of their products — Incisa 2.0 and the PointCast Corporate Broadcast Solution, which replaces I-Server, respectively — during our review cycle. However, neither product was available to bring into the lab before press time.

Other push products are on the market as well, but they didn't quite fit the mold we cast for

this review, as you'll see when you visit *Network World Fusion*.

Each product in our review includes a component that runs on an intranet server and comes with tools for creating, managing and delivering content. You also can tap third-party HTML generators and multimedia development tools to create content for these products. And each also has tools that enable you to create user accounts and allow users to sign up to receive various channels, which are logical links you set up to carry predefined data feeds.

All the products require vendor-specific client software to receive and display content.

The push is on

In setting up the server components, we discovered that each product takes a slightly different approach (see graphic, page 54). Wayfarer's Incisa most closely matches a true push model because the server sends data to clients for immediate display.

BackWeb's Channel Server and PointCast's I-Server, by contrast, really work in a pull-push architecture in which clients wake up at defined inter-

vals and ask the server to deliver content for the channels for which they've signed up. Both products also enable users to configure their clients to get channels from Internet push servers outside the organization.

All three products provide a server management facility for creating and configuring an intranet channel, making this task fairly straightforward. Channel Server uses that channel to send clients InfoPaks — message containers capable of carrying various types of files and instructions on what to do with them.

For instance, InfoPaks can contain HTML files, animations, audio files, video files, spreadsheets, executable programs, document files or just about anything else you can name.

You also can put scripts into InfoPaks that tell the client what to do with the files, such as alert users of an incoming message or interrupt them to display important data.

Scripts can define what should happen to an InfoPak after the user interacts with it, whether it be storing the file for later review or deleting it. You even can build an interactive program right into an InfoPak, such as one that prompts users for information as it installs a software upgrade.

This advanced functionality comes at a price: InfoPaks are not intuitive to build and require Channel Server's proprietary BackWeb Authoring Language Interface, which comes bundled in.

Wayfarer's Incisa and PointCast's I-Server offer limited support for multiple file types, which makes them suited for delivering only basic information. However, Incisa supports Macromedia, Inc.'s Shockwave animations and enables you to deliver a HeadLink, which amounts to a headline with a hotlink users can click on to retrieve addi-



ScoreCard

Overall Score

	Incisa 1.0	Channel Server 2.0	I-Server 1.2
Managing content flow and distributing management (25%)	9	7	6
Managing push recipients (25%)	8	7	4
Content options (15%)	6	9	6
Client delivery of content (15%)	8	9	7
Setting up a channel (15%)	9	7	8
Installation (5%)	6	8	7

Scores are based on a scale of 1-10. Percentages are the weight given each category in determining the overall score.

NetResults

Product : Incisa 1.0

Vendor : Wayfarer Communications, Inc.
: (800) 300-8559
: www.wayfarer.com

Price : \$5,000 for 100 concurrent users

Pros : ▲ Easy to manage the creation of content
: ▲ Easy to control registered users and content delivery

Cons : ▼ Support for limited content types
: ▼ Installation and configuration requires some diligence

Product : Channel Server 2.0

Vendor : BackWeb Technologies, Inc.
: (800) 863-0100
: www.backweb.com

Price : Starts at \$10,500

Pros : ▲ Tremendous flexibility in pushing large amounts of information to many users
: ▲ Supports many content types

Cons : ▼ Difficult to obtain registered user data
: ▼ Difficult for average user to create content

Product : I-Server 1.2

Vendor : PointCast, Inc.
: (408) 990-7000
: www.pointcast.com

Price : Free if you display advertisements on the client.

Pros : ▲ Free
: ▲ Easy to set up and maintain
: ▲ Existing installed base of clients

Cons : ▼ Limited content management control
: ▼ Can't control user access
: ▼ Support for limited content types

tional data. Otherwise, Incisa and I-Server do not encase content within a container, opting instead to send out raw files and rely on their clients to figure out what to do with them.

Sign me up

Subscribing to a channel with Channel Server and Incisa clients is simple; it requires the address of the push server and an additional logon for Incisa.

Channel Server supports an optional advanced registration scheme that requires you to design your own tools for capturing and managing registration information via Common Gateway Interface scripts and HTML forms.

Advanced registration enables you to take advantage of Channel Server's powerful information delivery functionality, which lets you target InfoPaks at certain users. Sample registration scripts are included in the documentation.

One hitch with PointCast's client is that it needs to be redirected away from PointCast's Central Broadcast Facility on the Internet to the server on your internal network that is running I-Server.

Once a channel is configured, you set up user groups and paths for directing content where it's needed.

Wayfarer offers the most flexibility and control for this task via Incisa's Reporter administration module. Reporter works on an individual logon scheme to register users, content managers and administrators. With it, you can set up individual user accounts, define user groups and write HeadLinks.

Go online for:

- A look at push products that didn't fit the mold for this review
- A review of the clients supplied with each of the reviewed products
- Some installation insights for each reviewed product
- Details about Wayfarer's Incisa 2.0 and PointCast's Corporate Broadcast Solution, which will replace I-Server



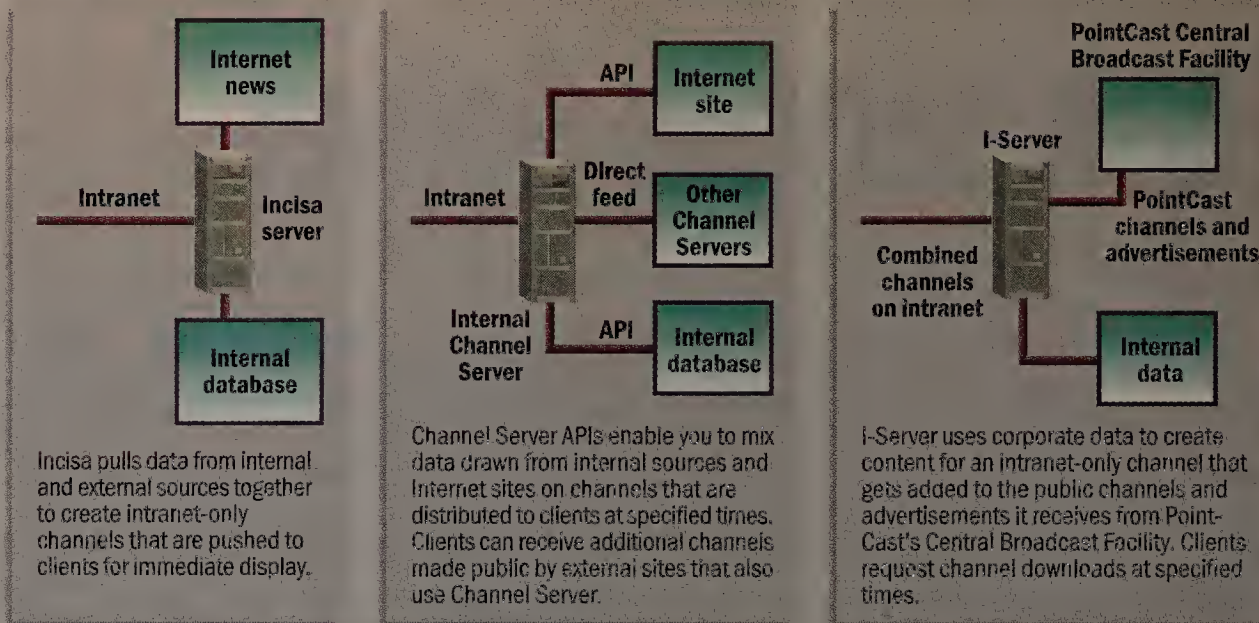
www.nwfusion.com

Because Incisa supports multiple logons, you can assign many users to one account. Individual logons can be given access to defined content feeds or be configured as part of any number of groups, with each group having a defined content feed.

BackWeb's Channel Server offers less control over who can subscribe to a channel. However, once you have a registered user base, you can designate whether an InfoPak is broadcast to everyone, sent to a subset of users subscribed to various channels or sent to just one person. You also can determine how long each InfoPak stays at the client as well as how the client interacts with it.

There is even a way to make sure users get the most important InfoPaks within each channel in a timely manner. For instance, you can put the most time-sensitive InfoPaks in subchannels on each channel and program clients to accept

PUSH TWISTS



InfoPaks from each channel's subchannel first.

PointCast's I-Server is the least flexible, offering no control over individual users or the delivery of content. I-Server's administration program allows you to create content groups within a channel, such as a group for sales information and one for human resources.

But it offers no way to restrict access to those groups or even to the channel, making it possible for all users to get unrestricted access to every content group.

As for usage reporting, BackWeb offers superior tools that provide excellent monitoring and logging of InfoPak activity. Logs show data such as the number of InfoPak deliveries, the number of interactions with an InfoPak and the number of times an InfoPak was delivered but not read. Wayfarer and PointCast offer no feedback on the actual use of the information they deliver.

Content management

Delivering content is one thing — managing it is quite another.

Distributing content management chores to different users eases the burden of managing a push channel. It also moves content decision-making to where it should be — in the hands of the originators, such as someone in the human resources or communications departments.

Wayfarer's Incisa offers the best content management tools. Its Reporter module enables administrators to determine which users have access to creating and managing content for designated groups. Content managers running a copy of Reporter can log on and enter content for immediate distribution.

PointCast's I-Server has some flexibility in distributing content management, but offers little control. It provides the means for departments to edit their own HTML files as well as the text file that defines the content of that channel group. Control over who has access to editing and managing groups is transferred to the file system permissions maintained on the I-Server system.

Content management schemes built into

BackWeb's Channel Server are too complex for a corporate environment. Creating InfoPaks is not for the timid, and installing them for delivery into Channel Server must be done by an administrator. You could implement an automated distribution system that puts content creation in the hands of content managers, but that requires a significant amount of additional programming.

Dipping into corporate databases to trigger pushed delivery of important messages is a natural extension of content management. Incisa's DataBridge module offers the most information on how to interact with and collect data from outside sources such as Open Database Connectivity-compliant databases and operations software from vendors such as SAP or PeopleSoft, Inc. Incisa 2.0 adds support for a Java API as well as Oracle Corp. database applications.

With Channel Server, you need to write your own hooks to look inside external databases, along with code that instructs Channel Server on what to do when certain values in those databases change. With I-Server, you can select views of information from a Lotus Development Corp. Domino server and send them out.

These three industry leaders prove that push technology can deliver. However, none of these products yet comes with a complete set of tools.

Eberle manages the development of technology and applications at Weber Public Relations Worldwide. He can be reached via e-mail at aeberle@highway1.com.

How we did it

We installed each product on a Windows NT 4.0-based server equipped with a 133-MHz Pentium CPU and 32M bytes of RAM. We created a push channel with each product, as well as content, which was delivered over a LAN to Windows 95-based clients outfitted with a 133-MHz Pentium CPU and 32M bytes of RAM.

Toy Scouts

Continued from page 1

Venezia is just one of about a dozen students who meet each Friday evening as members of the Toy Scouts. The five-year-old mentoring program, run by UCF instructors, allows a collection of highly creative graduate, undergraduate and even high school students to explore cyberspace and virtual reality.

The program's chief goal is to take highly motivated students and give them access to state-of-the-art network gear that drives computer graphics software and other facilities at the university's Institute for Simulation and Training (IST). Here students learn to build virtual worlds, study software systems and tinker with advanced network technology under the basic premise that, without formal education, they can soak up the complexities of virtual reality.

"The interest is there, the drive is there, the ambition is there," says Michael Myjak, the leader of this loose-knit troop and IST's senior research scientist. "All that's left is for these kids to teach themselves enough to be fairly good at distributed simulations. What we've found is that some of them can be exceptional at it."

This Friday night, two representatives from the United Space Alliance are on hand, anxious to learn more about the Toy Scouts program. The alliance is a consortium of private contractors — including the likes of Rockwell International Corp., Lockheed Martin Corp. and Boeing Co. — that serve as the prime contractor for NASA's space shuttle program. According to Myjak, the Alliance visitors are scouts themselves, trying to learn if IST's simulation and modeling endeavors can be adapted for the space shuttle and possibly planted on board a future space station.

From English to Java

First up for the visitors is Mirage, a visualization tool that is a hybrid between a map display and three-dimensional modeling. The system provides a pseudo-holographic image that is piped through a projector to an overhead mirror to reflect the scene onto the surface of the table.

Users don shutter glasses and magnetic positioning headgear that makes the image snap into place and appear to emerge from the table. Observers roam around the table to manipulate the position of virtual objects — all of which respond to real-time data pumped through several networked Silicon Graphics, Inc. (SGI) Onyx computers.

Mirage was developed originally for military applications. It also can provide a virtual modeling environment that enables users to simulate medical operations, tinker with engines and machinery and perform any number of other operations, Myjak says.

"I'd love to develop a second-generation Mirage system with holographic images so you don't need the glasses," Venezia says.

That's heady stuff, especially considering he origi-

inally graduated with an English degree. Unable to find a job and figuring his prospects would be brighter in IT, Venezia re-enrolled at UCF in computer science. Now he lugs around a dumbbell-size version of a Java programming book; he's teaching himself programming in Java and Virtual Reality Modeling Language. And Myjak says he's good at it.

There's much more involved than "just graphics programming," Venezia says. "You have to dig down deep and learn how the network layers work together. You need to understand the bandwidth issues and just how your data transfers will impact bandwidth. That's not something you learn at class during the day."

Toy Scouts have plenty of opportunity to learn about data networking. In fact, Myjak says, his first lesson to new scouts is a session about communications.

"Before students even design a virtual object, they have to appreciate the impact it will have on the under-

Head to Fusion for more details on the cyberspace Toy Scouts program and a tutorial on the Mirage simulated environment.

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lying network as they begin to make it move through a virtual environment," he says.

One student who has learned to appreciate networks is Sean Sharp, a quiet UCF senior and resident Toy Scout expert on multicast backbone (Mbone), a portion of the Internet that supports IP Multicast traffic.

"You don't learn about networks like the Mbone in school," Sharp says. "And you don't run into Unix systems and high-end machines like SGI workstations." When Myjak got his hands on Sharp, he turned him loose eyeballing the nuances of routers and examining the differences between TCP and User Datagram Protocol (UDP). That made him the prime student to learn about IP Multicasting when IST needed an expert.

Myjak often encourages students to learn about a specialized area on top of the basic skills they master.

That experience turned Sharp into an ideal research assistant. While the Toy Scouts are volunteers, IST sometimes hires exceptional students to help on IST projects, which in turn pays the students' way through graduate school. Myjak hired Sharp a year ago and charged him with learning about Mbone, analyzing the tools vendors are putting in place and figuring out how they work.

Sharp has done well, with the exception of once flooding the campus T-1 with Mbone signals. "That's when the university telecom guys call up and want to know if 85% of our T-1 is really going to a single workstation," Myjak chuckles.

Now Sharp is helping IST float a proposal for a whiteboard conferencing tool that will enable the Simulation Interoperability Standard Organization — an upstart standards group for computer simulation — to hold working group meetings online.

But the Toy Scouts aren't looking to develop products. In fact, Myjak says state law forbids IST from commercially developing technology it develops. "They don't want us to compete with local companies," he says, standing in front of the group's motto: "Will build virtual reality for food."

The Scouts can, however, partner with Fortune 500 companies and others on network and simulation research. IST licenses any technology to its partners, which then have the right to produce products.

All of which belies the name Toy Scouts, which reflects the group's original focus on developing virtual reality games with names such as Virtual Darts and Noseball.

Whether the technology his Toy Scouts produce is used for games or has commercial applications is beside the point to Myjak, who takes immense pride in all their efforts and in simply seeing students pass through the program.

About 30 students graduated during the past year, Myjak says, leaving only about a dozen Toy Scouts haunting IST's labs these days. He'll begin recruiting others in the fall, taking advantage of Orlando school career days and other opportunities to turn students on to technology.

"Anytime we can excite students about simulation and the technologies behind it, we've done our job well," Myjak says. "We're just doing our part to cultivate desperately needed talent in this field." ■



Management Strategies

Keeping to the letter of the law

Be able to identify what may constitute a hostile work environment.

By Loretta Principe

Miller Brewing Co. employee Jerrold Mackenzie was fired for sexual harassment after discussing a racy episode of the "Seinfeld" comedy TV show.

Mackenzie told a female colleague about the episode where the first name of Jerry's date rhymes with a particular part of the female anatomy. After he showed coworker Patricia Best the word in the dictionary, she accused him of sexual harassment. He was subsequently fired.

JUST DON'T DO IT

Here are some common examples of sexual harassment:

- ▶ **Off-color jokes.** It's best to keep such jokes out of the office. Some employees will send these jokes via the corporate e-mail system. E-mail is not private and, in most cases, is considered the same as writing a memo.
- ▶ **Touching.** Besides the obvious inappropriate touches, seemingly innocent touching such as shoulder massages may be an unwelcome sexual advance.
- ▶ **Interoffice dating.** Repeated requests for dating can give rise to a hostile work environment. So, too, can a soured office romance in which one person pressures the other to continue the relationship.
- ▶ **Innuendos and sexual comments.** Repeated sexual innuendos take on a life of their own and can be highly offensive.
- ▶ **Flirting.** If not consensual, flirting can be construed as an unwelcome sexual advance.
- ▶ **Sexual materials.** Displaying sexual materials, such as swimsuit calendars, should be an obvious no-no. What's not so obvious, but has the potential to be a huge problem, are materials downloaded from the Internet.

Mackenzie filed suit against Miller and won \$26.6 million in damages.

Across the U.S., managers are asking themselves the same question: What exactly is sexual harassment?

Unfortunately, there is no simple answer. If there was, the Equal Employment Opportunity Commission wouldn't have recorded more than 15,342 complaints in 1996, and U.S. companies wouldn't be scrambling to hire experts to teach

their managers the dos and don'ts of avoiding allegations of sexual harassment.

Kerry Dolan, an attorney with Crowell & Moring LLP in Washington, D.C., stresses that prevention is the best way to avoid sexual harassment lawsuits and multimillion-dollar damage awards.

Sexual harassment violates Title VII of the Civil Rights Act of 1964 and many states' fair employment practice laws. It is defined as any unwelcome sexual advance that adversely affects an individual's employment. Courts look to see if the action would offend a reasonable person.

Sexual harassment can be broken down into two main categories: quid pro quo and hostile work environment (HWE).

Quid pro quo harassment occurs when a supervisor conditions a tangible job benefit on an employee's submission to the supervisor's sexual advances. "Sleep with me or you're fired" is a clear example. The harasser in such a scenario is always a person in authority, and the company is strictly liable for the harassing supervisor's actions.

HWE harassment is more common than quid pro quo but is not so easily defined. HWE harassment makes up the gray areas of sexual harassment and accounts for much of the ongoing complaints and resulting litigation.

HWE harassment exists when the harasser's conduct is so severe or pervasive that it unreasonably interferes with an employee's work performance. In most instances, it is ongoing conduct that creates an intimidating, hostile or offensive working environment. Unlike actions under the quid pro quo theory, this type of harassment may involve supervisors, coworkers or even third parties.

Unlike quid pro quo harassment, managers can be held personally liable for someone else's offensive conduct. Keep trouble at bay by paying close attention to what's going on in the workforce, and listen to your employees, Dolan advises.

Even if something is only arguably sexual harassment, don't look the other way. Be sure to inform the Human Resources department of sexual harassment allegations or occurrences.

You must be aware of the issues and be ready to take appropriate steps to remedy the situation (see graphic). In addition, HR may have other information about the situation; someone could be a "repeat harasser" who offended a coworker in

accounting or sales.

Remember that managers and companies can be liable when they knew of or even should have known of the harassment.

Imagine an employee approaching you in this manner: "Joe is really bothering me. Every day he says these awful things. But please don't tell anyone. I feel better just for having told you."

The employee may even implore you not to tell anyone. But this could lead to problems for the company, the employee and you. It's possible a court could find you and your employer liable if you took no further action.

In such a case, you may need to persuade the employee that the case will be handled on a need-to-know basis and that it is important to notify HR. Open lines of communication are essential, as is an existing sexual harassment policy that confirms workers' jobs will not be jeopardized for coming forward.

In determining awards, courts look closely at what a company did to prevent or stop the harassment. Having a sexual harassment policy in place is an important factor that weighs in a company's favor.

Go to Fusion for more tips on how to prevent sexual harassment from occurring in your workplace.

- A variety of papers and resources from the Equal Employment Opportunity Commission
- Articles on establishing a corporate Internet usage policy to keep offensive material out of your workplace and guard against potential sexual harassment lawsuits



But it's not enough to just have a policy in place. The policy must make it crystal clear that sexual harassment of any type will not be tolerated in the workplace and that sanctions are in place and will be enforced.

The policy also should identify who an employee can approach and that there will be no retaliation for coming forward.

In addition, it is crucial to ensure that all of your employees know about the policy. One high-tech manager in the Mid-Atlantic region, who asked not to be identified, had a potential problem on his hands when one young worker kept teasing a colleague about her bra size. The manager didn't feel it was serious enough to call in HR but knew the problem needed to be nipped in the bud.

His solution? Copies and conference. Did it work? "You betcha. It might not have been politically correct to separate the sexes, but it worked," the manager says. The comments stopped, and some of the women on his staff actually thanked him for his sensitivity in handling the situation.

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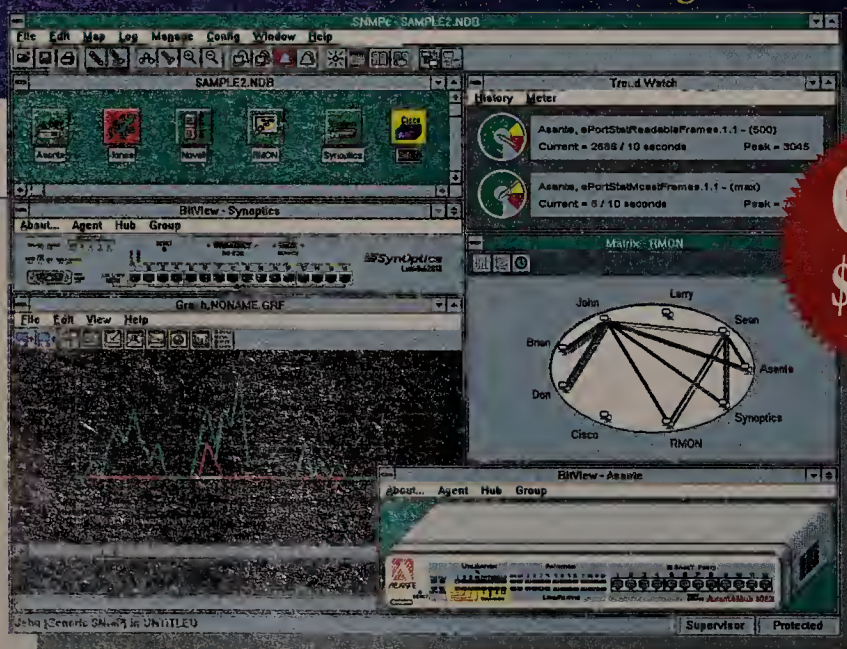
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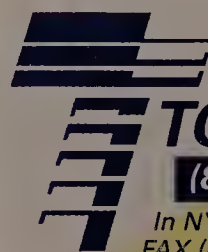
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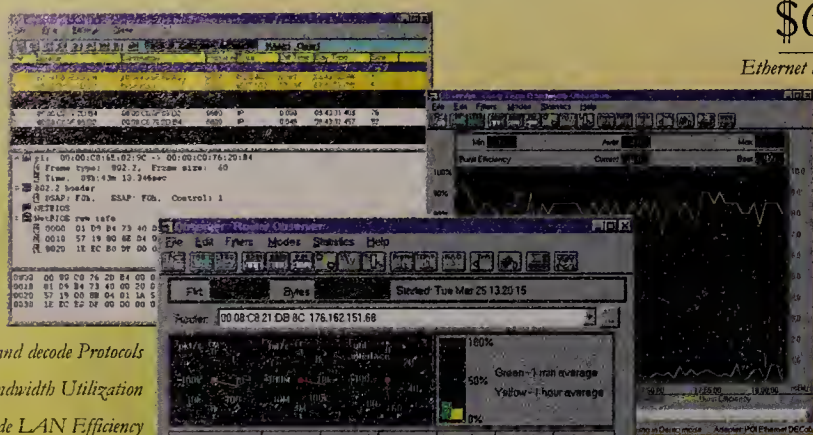
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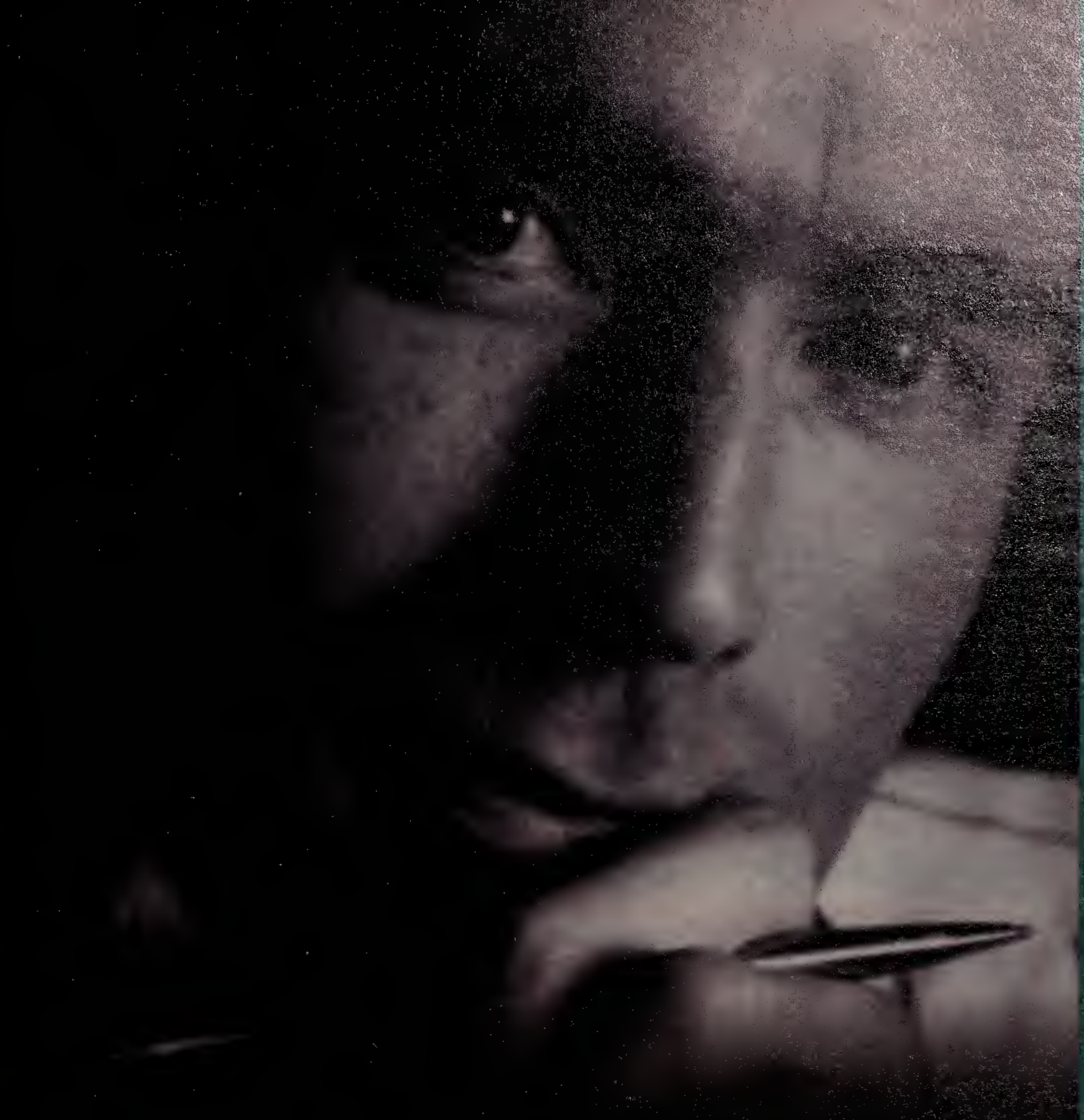
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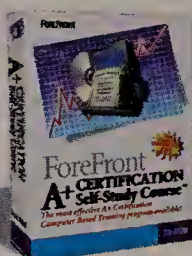
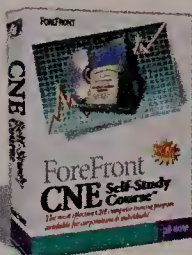
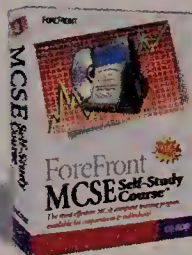


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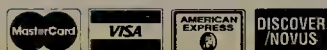
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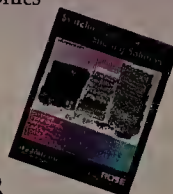
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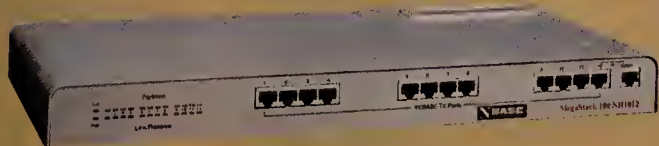
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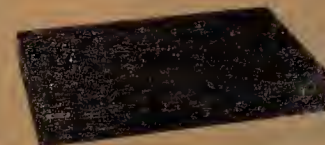
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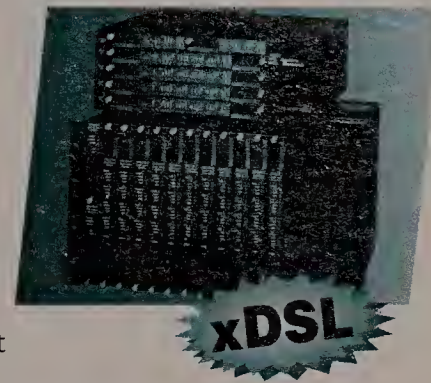
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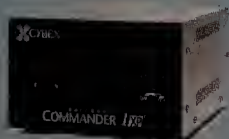
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Optional Add-on Cards

- Two 8-port cards supporting async and sync on any port
- ISDN BRI card

Applications

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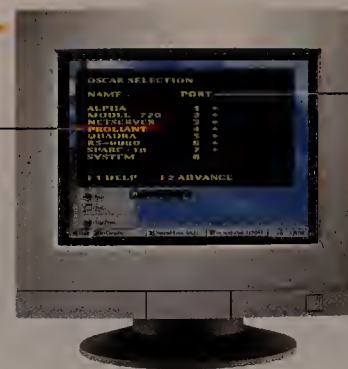
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Optional Add-on Cards

- Two 8-port cards supporting async and sync on any port
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Applications

- Internet PPP terminal server access via dial-up async
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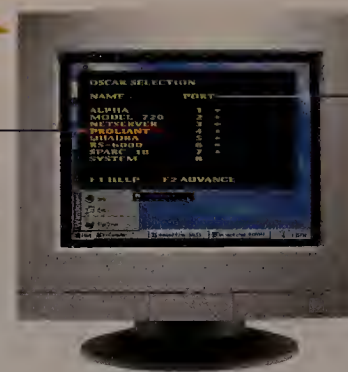
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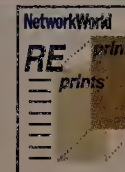
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SAU

Continued from page 1

ing products.

SAU and a 16-port SAU module for the Catalyst 5000 LAN switch line are expected to ship before year-end (NW, March 3, page 6). Cisco declined to comment about SAU.

Some Cisco shops are in no hurry for the new products, though.

"We've been doing just fine right now with what we have," said a network manager at an insurance firm in New England that uses Cisco's Catalyst 1800 token-ring backbone switches. SAU is expected to link token-ring workgroups to the Catalyst 1800 and Catalyst 5000 backbone switches.

"I wouldn't mind having a

100M bit/sec backbone inside the switch; that would be pretty sweet," the user said. "But what we have is cutting it for us for now."

Cisco said 100M bit/sec token ring would be available — via its InterSwitch Link (ISL) trunking protocol for Fast Ethernet — when its second-generation token-ring switches ship.

Best of both worlds

With SAU, Cisco will try to combine the best of CPU- and Application Specific Integrated Circuit (ASIC)-based first-generation token-ring switches, sources said. CPU-based switches provide a lot of functionality but are expensive and have low throughput. ASIC-based switches are inexpensive and have high throughput, but are low on functionality.

The performance of CPU-based SRB switches drops from 100,000 packet/sec to 15,000 packet/sec, Cisco found at one customer site, a source said. This user had planned to deploy 12

SIZING UP CISCO'S SAU

- 16-port fixed configuration workgroup switch and module for the Catalyst 5000

- Forwards 28-byte frames at wire speed

- Stackable

- High-speed uplink

- Hardware-based source route bridging

- Low cost

to 16 token rings linked by an FDDI backbone but had to scale that design back to four to

six rings, sources said.

Also, Cisco's own Catalyst 2600 switch — which is based on IBM's 8272 switch — uses the central CPU for Routing Information Field (RIF) expansion. RIF is a field in the IEEE 802.5 header that is used by an SRB to determine which token-ring segments a packet must transmit.

The Catalyst 2600 also lacks a stack port and did not have a high-speed uplink for nearly a year after it shipped. It now features an ATM 155M bit/sec uplink.

Hence, the SAU will perform SRB RIF expansion in hardware to avoid the throughput degradation of CPU-based switching and will achieve the wire-speed forwarding of 28-byte frames, sources said. SAU will support wire-speed frame forwarding concurrently on all ports, they said.

SAU also will be "low cost," sources said, though they did not disclose any pricing information. Analysts said the switches should cost between \$200 and

\$500 per port.

Similarly, the maximum number of SAUs in a stack and the type of high-speed uplink could not be learned by press time. Cisco and SAU codeveloper Olimcom A/S initially planned ATM uplinks at first customer ship but that now seems unlikely, especially given Cisco's plan to use ISL as a way to boost token-ring rates to 100M bit/sec (NW, May 26, page 1).

So observers now expect SAU uplinks to be Fast Ethernet.

Fast Ethernet uplinks also would prepare Cisco's token-ring customers for the eventual migration to switched Ethernet, sources said.

Cisco notes that token ring is not being deployed in new sites because of the low cost and ubiquity of switched Ethernet.

Cisco believes Ethernet will displace token ring over time with the majority of its customers, sources said. ■

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Tivoli

Continued from page 1

applications, the lightweight framework is designed to make it easier for users to monitor and install software on end systems, said Tivoli CEO Frank Moss.

"Installing, synchronizing and getting applications to work [with TME 10] is too hard," Moss said at Network World's Managing Enterprise Networks & Systems conference here. "We've made it too complicated."

The lightweight framework will not support TME 10 management server functions, the TME 10 server database or a graphical user interface, Moss said, which means it should be less expensive, simpler to install and less resource-intensive. It will enhance scalability of TME 10, he said, by making it easier for users to deploy TME 10 on more

of their machines.

In that respect, the framework sounds more like a management agent. But "it's more than an agent," Moss said. "It's a lightweight version of [TME]."

Moss said the lightweight framework would work with Desktop Management Interface (DMI) agents to collect PC hardware and software configuration data. DMI is a Desktop Management Task Force standard backed by an array of PC and server manufacturers.

Moss said Tivoli is currently in discussions with a number of hardware and software vendors concerning distribution of the lightweight framework. This strategy mirrors the recent management framework bundling programs announced by Tivoli rivals Computer Associates International, Inc. and Hewlett-Packard Co. (NW, July 28, page 23).

"It sounds like they're evolving the baseline framework

much like [CA] did," said Carolyn DiCenzo, director and principal analyst of client/server software worldwide at Dataquest, Inc. in San Jose, Calif. "These management infrastructures are now becoming a commodity. It remains to be seen if you need two or if [CA and Tivoli] will get together and define a standard."

Moss also reiterated Tivoli's plans to evolve TME 10 into a Java-based architecture by mid-1998. The architecture will include the Java Management API (JMAPI) for enabling Java management applications to take advantage of the platform's back-end functions, such as event and alarm correlation and data management.

Moss confirmed widespread speculation that Tivoli is working with Sun Microsystems, Inc. to ruggedize JMAPI for enterprise management duty (NW, July 14, page 6).

He also said Tivoli is exploring the idea of linking its Courier software distribution system with push technology to refine the process of updating software on distributed systems. Courier would handle the heavy lifting of distributing new applications and operating systems, while push would be used to continually deliver smaller upgrades and applets.

Moss did not cite a specific push technology that would be used with Courier, but he said Marimba, Inc.'s Castanet was designed to serve that purpose. ■



Tivoli CEO Moss wants to widen the reach of TME 10.

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Periodicals postage paid at Framingham, Mass., and additional mailing offices. Posted under Canadian International Publication agreement #0385662. *Network World* (ISSN 0887-7661) is published weekly, except for a single combined issue for the last week in December and the first week in January by *Network World, Inc.*, 161 Worcester Road, Framingham, Mass. 01701-9172.

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Cisco acquires xDSL

By Jim Duffy

Cisco Systems, Inc. last week announced it has signed a definitive agreement to purchase the Dagaz xDSL business of Integrated Network Corp. (INC) for approximately \$108 million in cash.

Cisco also will assume the Dagaz xDSL business with approximately 230,000 shares of Cisco stock, which were worth about \$16.5 million based on Cisco's July 25 closing price of \$79.

INC, based in Bridgewater, N.J., is a broadband network company that provides a suite of products for high-speed information transmission over existing copper phone lines. Under the terms of the purchase, Cisco will acquire INC's Dagaz xDSL products and intellectual property, personnel and other xDSL-related assets.

Central office xDSL

The acquisition brings a DSL central office (CO) concentrator and subscriber-side unit to Cisco's product portfolio. At the CO site, the Dagaz Jera is a carrier-class xDSL Access Multiplexer capable of speeding traffic onto an ATM-based network to reduce network congestion.

Jera also offers high-density voice splitting technology and

will eventually condense numerous network traffic feeds into a single line, Cisco said.

For subscriber-side digital access, Dagaz recently announced immediate availability of the Thurisa xDSL public premises device. The Cisco 700 series also offers xDSL to connect end users with networked applications at near-LAN speeds.

Cisco entered the DSL market with last spring's acquisition of Telesend, Inc.

Shortly thereafter, Cisco announced a new channel unit for D4 DSL FrameMuxes, the Cisco 90i.

The Cisco 90i provides telecommunications carriers with a high-speed Internet and intranet access device for small business users, telecommuters and residential users.

Dagaz's approximately 30 employees will continue to work in New Jersey and eventually will relocate to Cisco's Chelmsford, Mass., facility.

All employees, including Dagaz's President and Chief Operating Officer Dev Gupta, will become part of the Network to User Business Unit headed by Vice President and General Manager Kevin Kennedy within Cisco's Service Provider line of business. ■

Backspin

Documentation: Literacy, artistry and finger painting

The majority of product documentation stinks. But documentation as we know it will disappear.

I remember reading many years ago a paper by Professor Donald Knuth (<http://www-cs-staff.stanford.edu/~knuth/>) that discussed writing programs in such a way as to blend documentation with source code. In fact, Knuth went so far as to suggest that application source code created in the literate programming style would not just be readable but enjoyably so. It would be well-written.

Moreover, the documentation would be embedded in the source. What a wild idea. The benefit of this should be that when the code hacking is finished, a simple extract from the literate program source would generate the documentation. And any changes in the code would, if the programmer plays the game, be reflected in the documentation when it is next generated.

I bring this up because I have just finished a few days of reviewing software that has left me in the writer's version of shell shock and wishing that documentation were a lot better than it is.

The way of the future — completely online documentation — is already showing up.

In the course of this work, I've seen manuals that were pretty good (one thereof), several that were rough or incomplete, and a couple that I swear referred to a completely different product than the one in the box from which they came.

So where do vendors and their documentation writers go wrong?

I'd suggest a lack of strategy. I believe many vendors don't see development, documentation and quality assurance as inter-related. Either that or they are partially illiterate.

When the entire development process is focused on the production of quality as a required attribute of a saleable product, the very least that will appear will be reasonable documentation.

But really good documentation ... that's

a whole other topic and very rare. A product that has the best documentation I've seen in a long time is WebSite Professional from O'Reilly & Associates.

The documentation is in book format and covers the many and complex topics of its product architecture in a clear and — hold onto your hats — readable fashion. It is actually literate!

But the reality is that paper documentation will die out. Not because of a pinko-liberal desire to save the trees but because market forces will ultimately make paper documentation too expensive. The way of the future — completely online documentation — is already showing up in a number of products.

In this model, paper documentation is at most one (small) sheet that says, "Stick the disk in a drive, go to the drive, enter 'setup' and then follow your nose."

So far, I haven't seen truly excellent documentation online. (Let me know if you have.) Most of the current online stuff is based on Windows help files dressed up in their Sunday clothes. A reasonably flashy framework but lousy content is still lousy content.

But you know what? Eventually, even really good online documentation will disappear.

It will become so embedded in product that documentation as we currently think of it will vanish. Help and advice will be implicit in every step of use — and abuse. The documentation will become active and anticipate when you need it.

Perhaps by then software will be judged for artistic rather than engineering merit. But do we have software artists yet? Maybe the Michelangelo of applications is out there waiting to be discovered. I sure hope so because until then, we seem to be stuck with a remarkable number of people doing the equivalent of finger painting.

So, art critics, let me know your considered opinions at nwcolumn@gibbs.com or (800) 622-1108, Ext. 504.

I'd like to apologize for my column getting Bobbited two weeks ago (didn't know that was a verb?). The last paragraph should have read: "While the final result is by no means certain, my money is on Novell to win. Not a definitive, kill-the-competition win, but I believe Novell will garner the dominant market share within three years." So there.



Mark Gibbs



'NET BUZZ

The latest on the Internet/intranet industry

By Chris Nerney

MARKETING TYPES YES, ENGINEERS NO A faithful 'Net Buzz reader recently e-mailed us the details of an interesting conversation he had with a 3Com representative when he dropped by the company's Primary Access subsidiary in San Diego.

Bearing only his resumé and a fistful of dreams, our reader asked if there were any job openings.

3Com rep: "No. In fact, we're probably going to lay off some people."

Our reader: "Oh, really? Marketing types?"

3Com: "No, it's mostly engineers here."

Our reader: "But demand is up for network products."

3Com: "Well, we acquired U.S. Robotics, and their technology is better, so we'll probably keep those engineers and lay off some 3Com engineers."

Ouch. Hey, we know layoffs are common after a merger, but that kind of candor has got to hurt.

As for our job-seeking reader, we like his style. He clearly has a future in journalism, should he desire a 50% pay cut.

ALL THEY CAN THINK OF IS THEMSELVES Web site service provider Exodus Communications, Inc. has received \$21.5 million in funding from a group of investors.

Based in Santa Clara, Calif., Exodus offers a range of services, including design, installation, hosting and maintenance, to companies with large Internet and intranet sites.

Clients include the San Francisco Giants baseball team, the HotBot search engine site, Internet Profiles Corp. and Inktomi Corp.

The company currently has operations in Santa Clara and New York. It will use the new funding to buy stuff for their bosses and their bosses' families — oops, sorry, that's what we would do with \$21.5 million. Exodus will use the cash to open sites in Boston, Los Angeles, Seattle and Washington, D.C. by the end of the year.

Investors in Exodus' third round of funding include Fleet Equity Partners, JK & B Capital, Oak Investment Partners and the Chatterjee Group.

A MATCH MADE IN HEAVEN (AS REPORTED BY MARILYN MONROE) As most cybersurfers know, the Internet is a vast swirl of questionable facts, bogus claims and unsubstantiated rumors — precisely the kind of stuff that keeps us coming back for more.

But before the Web was even a glimmer in Tim Berners-Lee's inestimable eye, there was the National Enquirer, dishing out the latest on Elvis sightings, UFO rides and Bigfoot encounters — sometimes all in the same story.

This month the mother of all misinformation hopes to show World Wide Wackos how it's really done when it debuts the National Enquirer Online (www.nationalenquirer.com).

The new site promises readers "direct personal contact with your favorite celebrities" (and their ghosts, no doubt), discussion forums hosted by actress/astrologer Arlene Dahl and "a chance to participate by writing your own stories for cash."

We just knew that pub crawl with Abe Lincoln and Amelia Earhart would pay off some day.

FROM THE RIDICULOUS TO THE MORE RIDICULOUS Just weeks after embattled domain name registrar Network Solutions, Inc.'s (NSI) initial public offering, aspiring registrar Iperdome, Inc., of Atlanta, announced it is "testing the waters" for a modest Internet IPO.

Iperdome is pushing the concept of .per personal domain names, but its main business appears to be issuing press releases bashing NSI.

A worthy activity, to be sure, but not an especially lucrative one. And while NSI has plenty of problems, it also has real customers and revenue. Iperdome doesn't. And we're betting that Iperdome President Jay Fenello will find the IPO waters mighty frigid.

Send 'Net Buzz your best Internet- and intranet-related news items, and we'll send you a personalized quatrain written by our good friend Nostradamus. Contact Chris Nerney at (508) 820-7451 or cnery@nw.com.

"...Aberdeen notes that IBM customers who desire pure Microsoft NT application environments, or best-of-both-worlds hybrid environments can turn to IBM for integrated systems solutions."

For the full text of this Aberdeen Group white paper, and/or to see all of our products for Windows NT in one place, go to www.software.ibm.com/nt

August 4, 1997

The data mart without the wait. Visual Warehouse™ for Windows NT® can be up and running in days, not months. It connects all leading databases on the back end and runs your favorite query software up front. The "middleware," including DB2® for Windows NT, is integrated right out of the box, saving techs months of work. Cost savings versus most competitive products are equally dramatic. Hit www.software.ibm.com/vwinfo for proof.

The Software Minute

New ways to leverage IT assets in a connected world.

A quicker way to extend existing systems to the Web. VisualAge® for Java™ is the first enterprise-aware, incremental-compile application development environment you can buy. Extends existing server data and apps to Java clients anywhere without rewriting existing code. Underline "without rewriting." *InfoWorld* (4/7/97) called it "the best visual designer on the planet." But you can get a copy and make up your own mind at www.software.ibm.com/vajava.

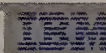
Hello. We hope you find

these bits helpful. Look for news

in this space every month. And for

the full A-to-Z, anytime, click

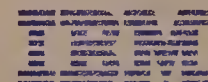
www.software.ibm.com



eNetwork™ Communications Suite provides enterprise-class access from virtually any desktop to any host over any network. It brings together IBM Personal Communications, today's most widely used emulator, and leading communications clients. (Lotus Notes Mail; FTP 32-bit TCP/IP protocol stacks; Netscape Navigator browser; and more.) Single-source support for all the above makes life easier for IT staff as well as users. Visit www.software.ibm.com/ecs for a complete evaluation kit.

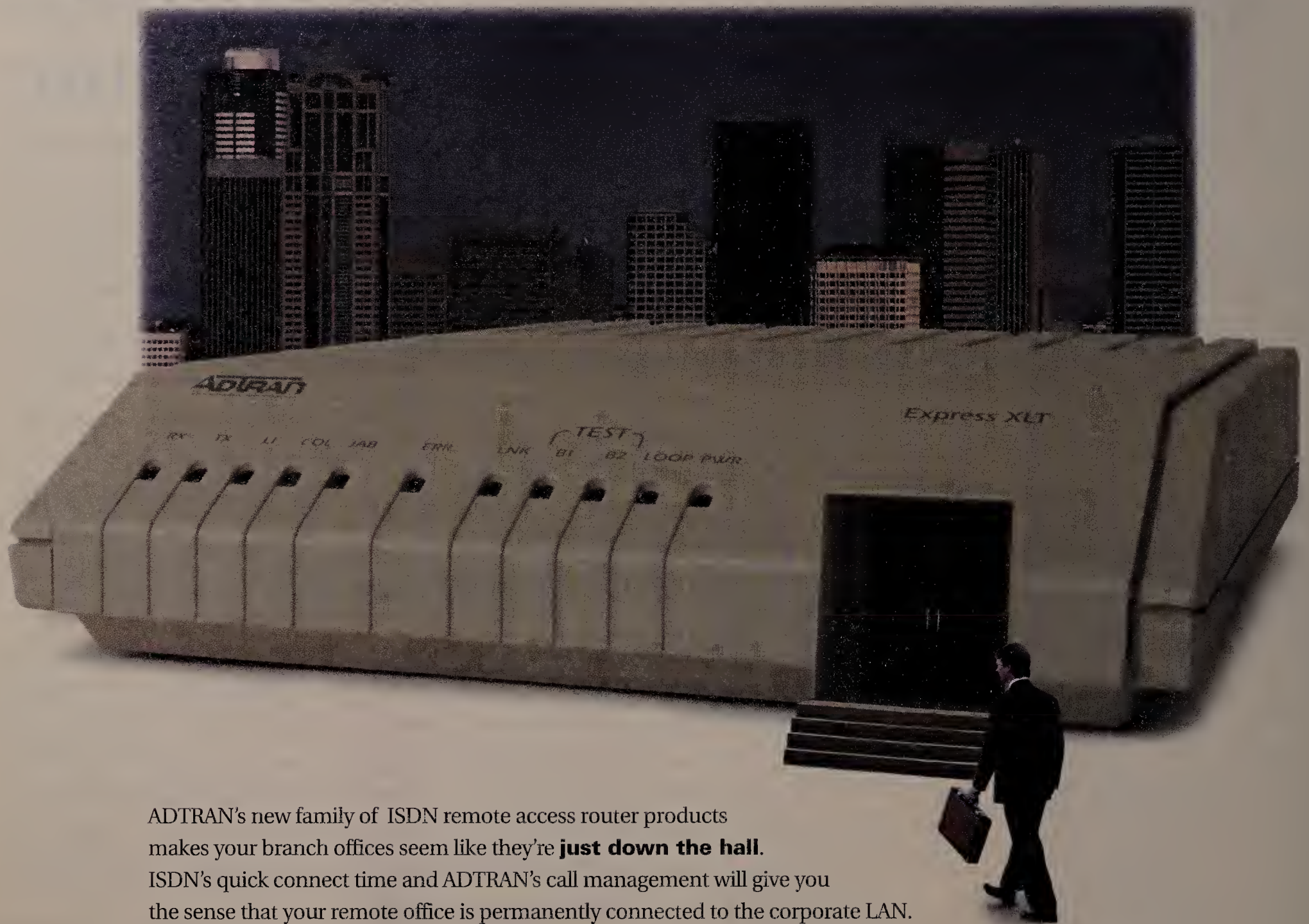
This free Java courseware on the Web is getting a ton of hits. From fundamentals (What is Java?) to business cases (How do we put it to work?) to resources for developers (How can I improve my skills?), you'll find most of what you're looking for in one place at www.ibm.com/java. Along with new product highlights from IBM, Sun, and other Java leaders.

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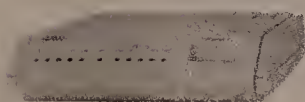
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Would you also like to receive a **FREE** subscription to *Intranet* magazine? It will be a monthly magazine with content similar to the Intranet supplement within *Network World*. ☐ **YES** ☐ No

Signature _____ Date _____

1 What is the principal business activity at your location? (check one only)

01. ☐ Manufacturing (other)

02. ☐ Finance/Banking

03. ☐ Insurance/Real Estate/Legal

04. ☐ Health Care Services

05. ☐ Hospitality/Entertainment/Recreation

06. ☐ Media/TV/Cable/Radio/Print

07. ☐ Retail/Wholesale Trade/Business Services

08. ☐ Transportation

09. ☐ Utilities

10. ☐ Education

11. ☐ Process Industries (Mining/Construction/
Petroleum Refining/Agriculture/Forestry)

12. ☐ Government (Federal/State/Local)
13. ☐ Military

14. ☐ Aerospace

15. ☐ Consulting (Independent)*

16. ☐ Carriers/Interconnects

17. ☐ Internet Service Provider (ISP)

18. ☐ Manufacturing (Computer/Communications/OEM)

19. ☐ Resellers of Computer/Network Products (VARs, VADs)

20. ☐ Systems/Network Integrators*

21. ☐ Distributors (Computer/Communications)*

22. ☐ Other (please specify) _____

*Please complete form based on largest client.

2 What is your job function? (check one only)

- NETWORK IS MANAGEMENT:**
1. ☐ Network Management

2. ☐ LAN Management

3. ☐ Datacom/Telecom Management

4. ☐ IS, IT, MIS, CIO, Systems Management

5. ☐ Internet/Intranet Management/Webmaster
6. ☐ Engineering Management

7. ☐ Corporate Management (CEO, Pres., VP, Dir., Mgr., Financial Management)

8. ☐ Consultant (Independent)

9. ☐ Other (please specify) _____

3 What is the estimated value of Network equipment and services that you specify, recommend or approve the purchase of? (Please print the appropriate number code in the box next to each product category. Please complete ALL categories A-M.)

1. \$50 Million or more

2. \$25 Million to \$49.9 Million

3. \$10 to \$24.9 Million

4. \$1 to \$9.9 Million

5. \$100,000 to \$999,999

6. \$50,000 to \$99,999

7. Under \$50,000

8. None of the above
- A ☐ Large Systems (Mainframes/Minis)

B ☐ Desktops(Micros/Laptops/Workstations)

C ☐ Servers

D ☐ LANs

E ☐ WAN Equipment

F ☐ Carrier Services

G ☐ Internetworking
- H ☐ Internet

I ☐ Intranet

J ☐ Remote Access

K ☐ Peripherals

L ☐ Software

M ☐ Service/Support

4 What is the total number of sites for which you have purchase influence? (check one only)

1. ☐ 100+ 2. ☐ 50 - 99 3. ☐ 20 - 49 4. ☐ 10 - 19 5. ☐ 2 - 9 6. ☐ 1 7. ☐ None

5 What is the total number of Servers/Clients/LANs installed/planned at your location/in your entire organization? (Check one box in each column)

SERVERS		CLIENTS		LANs	
At Location	Entire Org.	At Location	Entire Org.	At Location	Entire Org.
A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>	D <input type="checkbox"/>	E <input type="checkbox"/>	F <input type="checkbox"/>
<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>	<input type="checkbox"/> 1. 50,000+	<input type="checkbox"/>
<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>	<input type="checkbox"/> 2. 10,000 to 49,999	<input type="checkbox"/>
<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>	<input type="checkbox"/> 3. 1,000 to 9,999	<input type="checkbox"/>
<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>	<input type="checkbox"/> 4. 100 to 999	<input type="checkbox"/>
<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>	<input type="checkbox"/> 5. 50 to 99	<input type="checkbox"/>
<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>	<input type="checkbox"/> 6. 10 to 49	<input type="checkbox"/>
<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>	<input type="checkbox"/> 7. 1 to 9	<input type="checkbox"/>
<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>	<input type="checkbox"/> 8. none	<input type="checkbox"/>

6 What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

- A. Scope** (check one only)

1. ☐ Corporate/Enterprise

2. ☐ Department

3. ☐ None
- B. Involvement** (check ALL that apply)

1. ☐ Create Network Strategy

2. ☐ Recommend/Specify

3. ☐ Approve
4. ☐ Evaluate

5. ☐ Determine the need

6. ☐ None

To qualify: You must supply your name, title and company name/address/ phone on the mailing label below. Please print clearly.

☐ My home is also my business address.

Optional delivery address: Enter your home address below if your company will not accept delivery at your business address.

Street Address (Home) _____

City _____ State _____ Zip _____

7 What is the estimated number of employees at your location/in entire organization? (check one in each section)

- A. At your location:**

1. ☐ Over 20,000

2. ☐ 10,000 - 19,999

3. ☐ 5,000 - 9,999

4. ☐ 2,500 - 4,999
- B. Entire organization:**

1. ☐ Over 20,000

2. ☐ 10,000 - 19,999

3. ☐ 5,000 - 9,999

4. ☐ 2,500 - 4,999
5. ☐ 1,000 - 2,499

6. ☐ 500 - 999

7. ☐ 499 or less

8 Please indicate the products/services that you are currently involved in purchasing or plan to purchase: (Check ALL that apply)

- A. Currently involved in purchasing**

INTERNET/INTRANET

A ☐ B ☐

01. ☐ Internet Services

02. ☐ Firewalls/Security/Encryption

03. ☐ Internet Web Servers

04. ☐ Intranet Web Servers

05. ☐ TCP/IP Software

06. ☐ Management/Monitoring Software

07. ☐ Push Technology

08. ☐ Web Browsers

09. ☐ Intranet Applications/Groupware

10. ☐ Search/Retrieval Products (web crawler)

11. ☐ Internet Development Tools (JAVA, ActiveX, etc.)

12. ☐ Electronic Commerce Tools

13. ☐ Internet Telephony
- B. Plan to purchase**

REMOTE/WIRELESS COMPUTING

A ☐ B ☐

53. ☐ Remote Access Products

54. ☐ Remote Access Services

55. ☐ PDAs

56. ☐ PCMCIA Devices

57. ☐ Wireless Data Services

58. ☐ Wireless Data Equipment

59. ☐ Cellular Equipment & Services

- SOFTWARE/APPLICATIONS**

A ☐ B ☐

60. ☐ Network Management

61. ☐ Systems Management

62. ☐ Security

63. ☐ Communications Software

64. ☐ Terminal Emulation

65. ☐ Operating Systems

66. ☐ Applications Development Tools

67. ☐ Database Management/RDBMS

68. ☐ Groupware

69. ☐ Workflow

70. ☐ EDI

71. ☐ E-mail

72. ☐ Desktop Video Conferencing

73. ☐ Imaging

74. ☐ Suites/Server Suites (Back Office, etc.)

75. ☐ Middleware

76. ☐ Document Management

77. ☐ Site Metering Tools

78. ☐ Computer Telephony Integration (CTI)

79. ☐ Data Warehousing
- WIDE-AREA NETWORK EQUIPMENT & SERVICES**

A ☐ B ☐

80. ☐ Modems

81. ☐ Asynchronous Transfer Mode (ATM)

82. ☐ Frame Relay Equipment/Services

83. ☐ 4SDN Equipment & Services

84. ☐ FT-1/T-1/T-3 Multiplexers/Services

85. ☐ DSL Services/Products

86. ☐ SONET

87. ☐ Inverse Multiplexers

88. ☐ SMDS

89. ☐ Diagnostic/Test Equipment

90. ☐ DSU/CSU

91. ☐ VSAT/Satellite

92. ☐ PBXs

93. ☐ Voice Mail/Response

94. ☐ Videoconferencing

95. ☐ Leased Lines

96. ☐ Switched Data

97. ☐ Virtual Networks

98. ☐ Outsourcing/Systems Integration Services

99. ☐ Education/Training Services

00. ☐ None of the above (1 - 99)

- LOCAL-AREA NETWORKS**

A ☐ B ☐

14. ☐ Local-Area Networks

15. ☐ Network Operating System Software

16. ☐ Servers

17. ☐ Print Servers

18. ☐ ATM Switches

19. ☐ Token-Ring Switches

20. ☐ Ethernet Switches

21. ☐ Fast Ethernet

22. ☐ Gigabit Ethernet

23. ☐ IP Switches

24. ☐ LAN Storage/Backup

25. ☐ Optical LAN Storage/Backup

26. ☐ Disk LAN Storage/Backup

27. ☐ Tape LAN Storage/Backup

28. ☐ RAID LAN Storage/Backup

29. ☐ Network Test/Diagnostic Tools

30. ☐ Cables, Connectors, Baluns

31. ☐ UPS

32. ☐ Network Interface Cards

33. ☐ SNMP Network Management

- INTERNETWORKING**

A ☐ B ☐

34. ☐ Routers

35. ☐ Hubs

36. ☐ Intelligent Hubs

37. ☐ Stackable Hubs

38. ☐ Bridge/Router

39. ☐ Bridges

40. ☐ Gateways

41. ☐ Concentrators/Repeaters

- COMPUTERS/PERIPHERALS**

A ☐ B ☐

42. ☐ Network Computers

43. ☐ Laptops/Notebooks/Sub-Notebooks

44. ☐ Micros/PCs

45. ☐ Minis

46. ☐ Mainframes

47. ☐ Workstations

48. ☐ Printers/Network Printers

49. ☐ CD-ROM

50. ☐ Fax/Modem Boards

51. ☐ Graphics/Multimedia/Audio/Video Boards

52. ☐ Memory/Chips/Boards/Cards

If there is a parent company, please provide name _____

If military, please specify branch and base _____

If government, please specify division _____

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9 Please indicate the platforms that are currently installed/planned: (check ALL that apply)

- A. Currently installed**

NETWORK PROTOCOLS

A ☐ B ☐

01. ☐ TCP/IP

02. ☐ IPv6

03. ☐ SNA

04. ☐ DECnet

05. ☐ Novell IPX/SPX

06. ☐ APPC/APPN/LU 6.2

07. ☐ NETBIOS

08. ☐ AppleTalk

09. ☐ NFS

10. ☐ Other (please specify) _____
- B. Planned for purchase**

NETWORK OPERATING SYSTEM

A ☐ B ☐

25. ☐ Windows NT

26. ☐ Windows NT/Advanced Server

27. ☐ Novell IntranetWare

28. ☐ Novell (NetWare 4.X)

29. ☐ Novell (NetWare 2.X, 3.X)

30. ☐ Microsoft (LAN Manager)

31. ☐ LocalTalk (AppleTalk)

32. ☐ Banyan (VINES)

33. ☐ IBM (LAN Server)

34. ☐ Artisoft (LANtastic)

35. ☐ Other (please specify) _____

- LAN ENVIRONMENT**

A ☐ B ☐

11. ☐ Gigabit Ethernet

12. ☐ Switched Ethernet

13. ☐ Fast Ethernet (100 Megabit Ethernet)

14. ☐ Ethernet

15. ☐ ATM

16. ☐ Token Ring/Token Ring Switching

17. ☐ IP Switching

18. ☐ FDDI

19. ☐ 100Base-T

20. ☐ 10Base-T

21. ☐ LocalTalk

22. ☐ Fibre Channel

23. ☐ 100vg Any LAN

24. ☐ Other (please specify) _____
- COMPUTER OPERATING SYSTEM**

A ☐ B ☐

36. ☐ NT Server

37. ☐ NT Workstation

38. ☐ Unix/Xenix/AIX

39. ☐ Solaris

40. ☐ Windows

41. ☐ Windows 95

42. ☐ Windows 97

43. ☐ DOS

44. ☐ OS/2/OS/2 Warp

45. ☐ IBM MVS/VM/VSE

46. ☐ Digital VMS

47. ☐ Macintosh

48. ☐ Other (please specify) _____

49. ☐ None of the above (1-48)

10 Which of the following Servers/Clients do you have installed/planned at your location? (check ALL that apply in each column)

- | | A. Servers | B. Clients | | A. Servers | B. Clients |
|----------------------------|--------------------------|--------------------------|-----------|--------------------------|--------------------------|
| 01. Power PC | <input type="checkbox"/> | <input type="checkbox"/> | 07. 486 | <input type="checkbox"/> | <input type="checkbox"/> |
| 02. Power Mac | <input type="checkbox"/> | <input type="checkbox"/> | 08. 386 | <input type="checkbox"/> | <input type="checkbox"/> |
| 03. Mac Other | <input type="checkbox"/> | <input type="checkbox"/> | 09. 286 | <input type="checkbox"/> | <input type="checkbox"/> |
| 04. Multiprocessor Servers | <input type="checkbox"/> | <input type="checkbox"/> | 10. Risc | <input type="checkbox"/> | <input type="checkbox"/> |
| 05. P6/PII | <input type="checkbox"/> | <input type="checkbox"/> | 11. Alpha | <input type="checkbox"/> | <input type="checkbox"/> |
| 06. Pentium/Pentium Pro | <input type="checkbox"/> | <input type="checkbox"/> | 12. Other | <input type="checkbox"/> | <input type="checkbox"/> |

11 Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

- A - Mainframes (Large Scale)**

1. ☐ IBM

2. ☐ Amdahl

3. ☐ Cray

4. ☐ Hitachi

5. ☐ Unisys

6. ☐ Other _____
- B - Minis (Midrange)**

1. ☐ IBM RS6000

2. ☐ IBM AS400

3. ☐ Digital

4. ☐ Tandem

5. ☐ Unisys

6. ☐ AT&T GIS

7. ☐ H-P

8. ☐ Data General

9. ☐ Other _____
- C - Workstations**

1. ☐ Sun Microsystems

2. ☐ Silicon Graphics

3. ☐ Digital

4. ☐ H-P

5. ☐ IBM

6. ☐ Other _____

12 What is the estimated gross annual revenue of your entire company/ institution? (check one only)

01. ☐ \$20 billion or more

02. ☐ \$10 billion to \$19.9 billion

03. ☐ \$1 billion to \$9.9 billion

04. ☐ \$500 million to \$999.9 million
05. ☐ \$100 million to \$499.9 million

06. ☐ \$50 million to \$99.9 million

07. ☐ \$10 million to \$49.9 million

08. ☐ \$5 million to \$9.9 million
09. ☐ \$4.9 million or less

10. ☐ None of the above

13 For which areas outside of North America do you have purchase influence? (check ALL that apply)

1. ☐ Europe

2. ☐ Asia

3. ☐ South America

4. ☐ Australia

5. ☐ Middle East

6. ☐ None

Form: 9702

Fold at **A** first, **B** second. Then seal at **C** with tape (no staples).

To Qualify, You Must Provide Your Name, Title and Business Address/Phone Here.

Name _____

Title _____

Company Name _____

Company Address _____

City/State/Zip _____

Business Telephone _____ Business Fax _____

Internet E-mail Address _____

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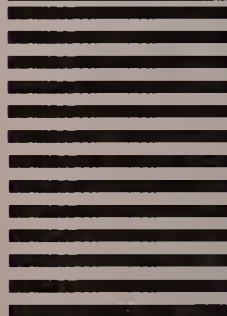
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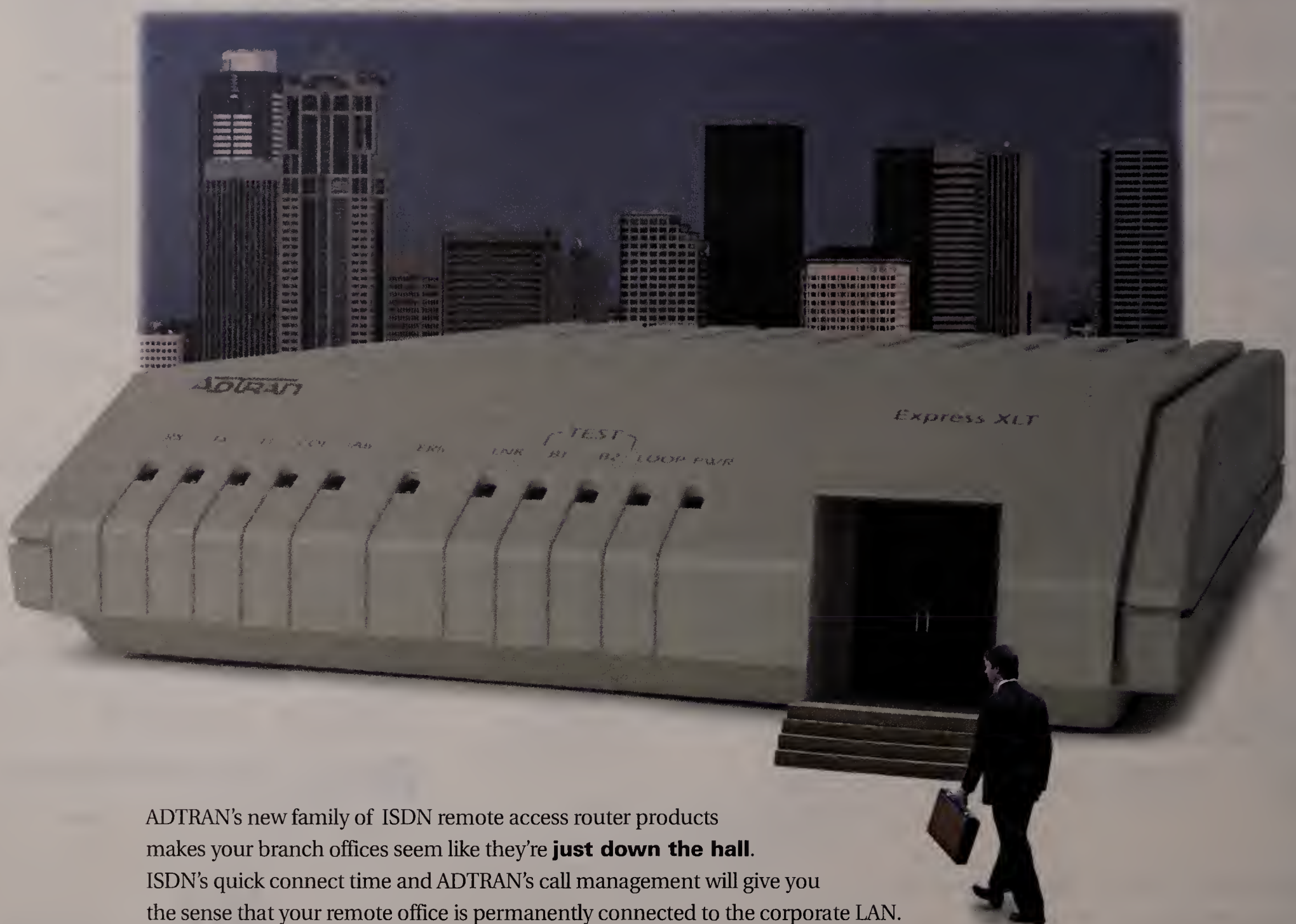
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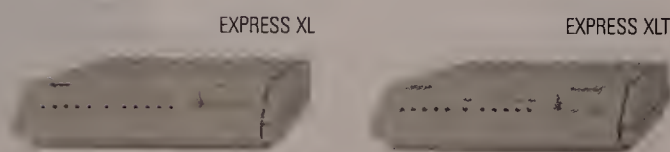
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